

**LABOUR AND HOUSING
IN INDIA**

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WITH AN INTRODUCTION

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PREFACE

I HAVE endeavoured in this volume to bring together the results of some investigations into labour economics, in which I have been engaged for the last few years as a research scholar in the Department of Economics and Sociology, Lucknow University.

The literature on Indian labour and the numerous problems connected with it is still very scanty, while the subjects of industrial housing, sanitation, and welfare practically have been disregarded. The Bombay Labour Office, no doubt, has been making some inquiries in Bombay city through paid investigators, and Mr. Burnett Hurst also has brought out a useful monograph on conditions in the same city. For the rest of industrial India, however, such problems have not received the least attention. No apology is needed, therefore, to present this volume to all those interested in Indian labour and social and civic welfare.

I have visited the labourers' quarters in the centres of cotton industry, such as Bombay, Ahmedabad, Nagpur and Akola; in Howrah and Calcutta, and the jute mill villages on the Hooghly; in the coal mines at Jherria and Ranigunge; in Jamshedpur, the headquarters of the Tata iron and steel industry; in the railway settlements, such as Kharagpore, Kanchrapara, Bhusawal, Gorakhpore and Alambag; and also in Cawnpore, the foremost industrial city of northern India. Everywhere direct personal touch with the working-class families has been sought. Mill managers and overseers, as well as municipal officers and social workers, have also been interviewed in most industrial towns, in order to obtain their views on the various problems treated in this book.

In the first part I have shown how the problem of housing the workers has become acute within recent years as a result of rapid industrialisation. This hardly permitted any initiative to the employers to cope with the fast expansion of the labour population, or breathing time for the working-men themselves for a gradual social adjustment. I have dealt next with the sociological issues, and analysed the effects of congestion and bad housing on the social, economic and moral life of the workers. Life in unventilated and ill-lighted one-room tenements, when these are crammed on all

sides, and are sheltering several families apiece, can well be imagined. If it be realised also that for such accommodation 10 to 20 per cent of the total family income has to be spent, the seriousness of the situation will become apparent. Naturally, the labourers leave their families behind them in the villages. The absence of domestic and social restraints, as well as the emptiness and discomfort of life under conditions of squalor, have their natural reactions on intemperance and immorality. High infantile mortality also follows as a matter of course amidst such surroundings. In most of our industrial cities one-third to one-half the children die within a year of birth. The death-rates from pthisis and other respiratory diseases are also appalling; these rates show not only no abatement, but appear to be on the increase.

In the concluding part I have examined schemes of housing reform which already have been undertaken in India by the employers as well as by municipalities, improvement trusts and co-operative societies. Little, however, has been achieved in comparison with the enormous tasks that still face us. Great Britain, America, Australia, New Zealand, and many European countries have progressed far indeed, with housing subsidies and state housing schemes. The provision of suitable house accommodation to every citizen is considered almost as important as education and sanitation. The movement of city and regional planning, and the establishment of garden cities and industrial suburbs, also is being increasingly advocated in the West for well ordered and wholesome industrial development.

No doubt, some kind of housing and town-planning legislation is urgently needed in India. A modest beginning might at least be made by passing an Indian Housing and Town-planning Act, an outline of which has been sketched towards the end of the book. Nothing, however, can be gained by importing wholesale plans and practices which have been successful in the West. The task of adapting the architecture of our workmen's homes to ancient domestic and social traditions, and to the amenities of life which our people seek, is as important as the task of reorienting the occupational segregation, characteristic of the Indian city, to the new and expanded needs of industrial life.

The provincial and city census reports have been freely and extensively used for the material relating to overcrowding and social composition of our chief cities. The public health reports of the

presidency towns and the unpublished reports of many other cities, as also some old and decaying municipal records, have been closely examined in order to bring out the effects of congestion and environment on mortality and morbidity rates. It should be pointed out in this connection that the collection of vital and census statistics in some of our cities is not free from blemish. Wherever I have had reason to doubt the accuracy of figures due to lack of precise definition of terms or the ignorance of the enumerators, I have sought to supplement or correct them by personal observation and investigation.

Throughout I have endeavoured to give an accurate picture of the situation and to shun all exaggeration. It is difficult to avoid strong language when one comes face to face with the most revolting conditions, where 'manhood is brutalised, womanhood dishonoured, and childhood poisoned at the very source.' But facts tell more than words. I shall consider my labours amply rewarded if these contribute to arouse the interest of the public and of the students at the universities in the lives of our industrial workers, in their daily trials and sorrows.

My special thanks are due to Dr. Radhakamal Mukerjee, Professor of Economics and Sociology, Lucknow University, both for writing the introduction to this book and for valuable help throughout its preparation.

University of Lucknow.
October, 1929.

RAJ BAHADUR GUPTA.

INTRODUCTION

It is a privilege to introduce to the public the first exhaustive and systematic treatise on the subject of *Labour and Housing in India* from the pen of my pupil and friend, Dr. Raj Bahadur Gupta, formerly research scholar, and now a colleague, in the Department of Economics and Sociology. Dr. Gupta's work is a mine of new information; it augurs well for the book that the Lucknow University's first award of the Ph.D. degree was given to it. Much of the economics of the present day is written from the arm-chair and in the library. Here we have the freshness of an investigator who is not only quite at home with blue-books and reports, but also goes for his materials to the factories and the homes of the labourers. Thus the human interest is much more alive and throbbing than in most of our current economic literature.

The subject also has an imperative human appeal; it vitally concerns not only our economic but also our social future. The efficiency of the labour force of a country ultimately governs its economic status in the world. In India there is a cheap supply of labour, both for the fields and the factories. In agriculture, farming is not conducted on scientific lines, and hence labour is cheap relatively to capital and machinery. In fact, the introduction of scientific methods and investment of capital in agriculture are retarded by the abundant supply of agricultural labour. In the manufacturing industry, however, the shibboleth of cheap labour can no longer apply, for, as a matter of fact, Indian mill labour in relation to quality and quantity of production is not cheap. Labour is inefficient and dear in relation to the capital and the machinery which it handles. It is a sociological paradox that where man is cheap quantitatively he is dear qualitatively. In our industrial centres nothing is cheaper than human life, nothing dearer than good living and sanitary conditions.

There is no clearer index of bad environmental conditions in an industrial city than a heavy infant mortality. On the other hand, there can be no surer criterion of social efficiency and sanitary administration than the lowering of this mortality. The infant mortality of our chief industrial towns is appalling. Dr. Gupta's

investigations show that in Bombay and Cawnpore almost half the number, and in Calcutta, Ahmedabad, Nagpur and Rangoon more than one out of four children die within a year of their birth. In industrial towns in England only one out of ten children die in the same period. If we take into consideration the child mortality in those wards of our industrial cities which are inhabited by the lower middle and labouring classes, the effects of overcrowding and insanitation will be most clearly apparent. In some of these wards, eight or nine out of ten children die within a year. Dr. Gupta has found a close relation between house accommodation and child mortality. The greater the congestion the higher the mortality, and vice versa. In Bombay, the study of the infant mortality rate by the number of rooms occupied has distinctly shown a correspondence between house room and infant welfare. The extent of overcrowding also is much more serious in Indian cities than in the cities of the West. Of the total population of Bombay, 66 per cent live in one-room tenements as against 64 per cent in Cawnpore, 6 per cent in London, 5 in Edinburgh, 9 in Dundee, and 13 in Glasgow. The average number of persons per room in the one-room tenements is 4.03 in Bombay, 3.25 in Glasgow, 3.2 in Cawnpore, and 2.5 in Edinburgh. In the worst section of Bombay, the Sewri section, no less than 96 per cent of the population live in one-room tenements with five persons per room. In Karachi the overcrowding is even worse than in Bombay, the percentage of persons living in rooms occupied by 6 to 9 and 10 to 19 persons being 32.3 and 12.4 there, as against 22.1 and 10.8 in Bombay.

Dr. Gupta has estimated from Glasgow figures that in a one-room tenement a child loses at least 10 inches in height and 12 lbs. in weight as compared with a normal child.

The improvement of housing conditions in our industrial cities has thus come to the forefront of our industrial programmes. It is now realised more and more that the whole future of our industrial development is bound up with the question of improving the living and hygienic conditions in our mill towns and industrial centres. The publication of Dr. Gupta's work, therefore, is most opportune now that a Royal Commission is investigating the whole problem of Indian labour.

The work of Professor Patrick Geddes and Mr. Lanchester, in reviewing the conditions and requirements of city improvement and development in different parts of India, has contributed to arouse

the Indian civic conscience in this regard. Garden cities have been planned here and there, though the people who benefit are not always the labouring classes. There are fine railway settlements at Kanchrapara, Jamalpur and Alambagh, which, however, are meant to cater more for the needs of the higher employees. There are workmen's villages attached to the Buckingham and Carnatic Mills, in Madras, while there is a big scheme for a labourers' colony at Indora in Nagpur. These are mostly villages comprising a large number of huts, and if they are isolated and properly drained, and linked up into an orderly road system, the result will be inspiring to others. Jamshedpur, with her well laid out roads, parks and different grades of houses, is now a beautiful city, but its future is uncertain on account of the growing increase of population and demand upon living space. A few miles from Lahore, a garden city for the middle class is being built; the beauty and the symmetry of the plan deserve the highest praise. Apart from these tentative or imperfect attempts at building garden cities, there are in several of our mill towns labour settlements built by the employers. In some, the living and sanitary conditions are satisfactory; to many, Professor Geddes' appropriate description, 'standardised slums,' applies.

As a general rule, mill towns and industrial centres are still allowed to be built and to grow in India without reference to any plan or to the possibilities of industrial development and expansion of population.

Calcutta, with her large number of single huts, or *bastis*,* compacted together; and Bombay, with her immense back-to-back tenement houses, represent two characteristic types of bad housing which are gradually spreading to every smaller industrial town in India. The colossal problems of sanitation, sewerage and transport in such big cities can be solved only by the adoption of Western methods of town-planning, industrial housing and means of communication. For cities like these the system of zoning and development of industrial suburbs as well as cheap suburban transport have long been felt as essential to relieve congestion, but progress in these directions will await education as well as the adaptation of national habits to meet the demands of new development schemes.

On the other hand, in many of the smaller industrial towns and villages, which are becoming as closely packed as some of the labour *bastis* of Calcutta, Cawnpore or Nagpur, there is great scope

for improvement if we can only renew the traditional practices under the new conditions. Many of the mill towns and municipalities are unable to provide the costly systems of sanitation in vogue in the West, and, instead of waiting a long time for better finance, it will be economically sound if we can develop along the lines of indigenous tradition.

In India the most important problem of drainage is to get rid of the surface water during the monsoon rainfall. One often notices the labour quarters on the banks of the Hooghly, in Madras, Madura, Nagpur or Ahmedabad, flooded during the rains, spreading filth and disease all around.

A system of organised drainage for the smaller mill towns remains prohibitive in cost; for many of the smaller municipalities suffer from financial straits. The traditional Indian method has been to construct a series of tanks on a lower level, which act as safety valves in cases of sudden rainfall. In a tropical climate the tank equalises the temperature and affords facilities for bathing and washing, the lack of which has been so trying to the Indian factory hand in his new environment.

Municipalities can also ill afford to undertake costly engineering works to bring water from a great distance. In too many of our factory towns and villages, the enormous crowds which gather at water-hydrants as long as water is available indicate the inadequate supply. In mill centres one occasionally comes across a definite restriction of the quantity of water which a labourer's family may obtain. In such cases a tank on the higher site of the mill village or city, deepened and embanked for purposes of cleanliness, will ensure the supply of good drinking water. Other tanks might be constructed at lower levels, to provide facilities for bathing and washing.

The tank has played a very important part in Indian social and religious life. Temples and guest houses are built on its banks, while its waters are regarded as sacred, and saved thereby from pollution. In many of the garden cities of southern India the tank is as much an object of worship as the god in the temple itself, while the floating boat and water festival assure its periodical purification. If we can revive the respect for tanks in our present day industrial environment, not only will the labourers get a more stable and copious supply of water, but there will also be far greater facilities for bathing and washing than they can enjoy at present.

A tank or a river is always a source of delight and pride for an Indian. Unfortunately, the modern Indian city development seems always to begin with the abolition of the tank and to ignore the advantages of river transport. In the jute mill villages, along the banks of the Hooghly, the provision of a canal system would be economically sound. The canals, instead of being neglected, as at Bally or Triveni, should be systematically linked up with factory and storage areas. The possible developments of waterways are seen in the Netherlands, as well as in Malabar and Cochin, where the coast from Quilon to Cannanore is fringed with garden cities.

A further instance of disregard of opportunities will be seen in the shallow pits along the railway lines, dug for earthwork. These excavations might be used for drainage channels, so that the water would not stagnate as now, thereby causing malaria. Such channels might be used for irrigation or form a part of an extended canal system, connecting the factories and goods-sheds with the villages where the factory hands live.

On the banks of the rivers big industrial cities, like Cawnpore and Ahmedabad, or smaller mill towns like those of Bengal, are ceaselessly polluting the stream, while the problem of water-supply, which is much simpler here, is seldom tackled with care and respect for Indian susceptibilities.

The pollution of rivers in America has raised most indignant protests, and called for colossal schemes for the disposal of city refuse and sewerage, while in England even sanitary authorities are not permitted to pollute a natural stream by sewerage matter.

This brings us to the question of the removal of refuse in our mill towns, which must also be suited to the habits and traditions of the various classes of the Indian community. One of the main reasons for the accumulation of filth and dirt in the labour quarters of our industrial cities and mill towns is the absence of an adequate number of latrines. In some of the mill villages on the river Hooghly I found one latrine for 50 families. In Nagpur there are 14,456 houses in which there are no latrines at all. Not less than 56 public latrines were to be provided for, with about 1,100 seating arrangements. Yet the provision is inadequate, and people respond to calls of nature at each and every place. Similarly, in Ahmedabad more than 60 per cent of the houses are without latrines. In most of our smaller mill towns the evil is serious, and calls for urgent measures. The long period of waiting before a public latrine, as well

as a heterogeneous group of men, women and children answering the calls of nature in open meadows, constitute a picture where there is no decency, no regard for others, and, finally, a callous indifference to the laws of hygiene. Most of the streets and bye-lanes of labour quarters everywhere are strewn over with night soil. Very frequently the sewerage is ill-collected and ill-removed, with the result that myriads of dangerous germs pollute the atmosphere of a slum, which aggravates the dangers of congestion.

In India, the field latrine is the existing practice in the villages, and even to-day in the small industrial towns and villages, the provision of open space, with some degree of privacy, will not only be cheaper but also safer than elaborate sewerage schemes. We might here refer to the suggestion of a very eminent sanitarian, Dr. Vivian Poore, who thought 'that house and garden might be a self-contained sanitary system,' and he did by experiments prove that a house, with a garden of about half an acre, could deal with its own refuse of all kinds, and that a perfectly sanitary arrangement could be made without any drains going outside the limits of the garden itself, so that it will be realised there are possibilities in this direction. There is no doubt that, in many homes of the Indian middle class, we find an orchard and garden utilising the refuse of the household for fruit and vegetable gardening, which makes the family more or less self-sufficient in this respect.

Another feature of Indian life which needs utilisation in the new industrial environment is the strong group or communal spirit. Often in the slums of a heterogeneous city like Calcutta or Bombay, we find men belonging to the same caste congregate together in separate quarters of their town; and we have in addition their *punchayats* as well as their communal temples installed in slumdom. With the provision of more liberal space, and of a tank in the middle, with beautiful steps and a temple on its bank, there will be a revival of the community life, the discontinuity of which has been the chief cause of deterioration of the villager in his new environment. The caste *punchayats*, which now deal with social disputes and observances, may be utilised for labour organisation and welfare. Co-operative societies may utilise the caste spirit, while common canteens, stores, as well as welfare associations, may take the place of village institutions.

A hundred families belonging to the same caste may be grouped into a village within the city, which will thus be split up into several

natural areas dominated by common attitudes and sentiments. Each such natural group will have a common meeting room, a common well, a common canteen, a common latrine, and a common school. To bring the village into slumdom is possible under this arrangement. Co-operative housing and public utility societies as well as community centres should be initiated to develop the civic consciousness and enlist the co-operation of the people themselves in the solution of their problems of housing and social welfare. The different natural areas into which a city may be divided will have its characteristic type of houses, so that the chief difficulty of the Indian town-planner, arising from the fact that every grade of house from the chamar's hut to the landlord's mansion is wanted everywhere, may be obviated to some extent. As we recognise the distinction between administrative and natural areas, we can grapple more easily with many of our municipal and educational problems, the tasks of community organisation and zoning as well as housing and sanitation.

In India the village is often found split up into self-contained caste wards, each with its temple, its communal fund and its municipality, as well as its own recreations and festivals. The traditions of handicraft and trade still support the tendencies of segregation and decentralisation to a large extent. This characteristic national trait may be utilised in schemes of city development and extensions outside the present urban areas. Nothing has contributed more to the deterioration of the Indian mill operative than the barrier of thought, feeling and action between urban dweller and villager. The development of civic institutions in line with those which preserved his *morale* in the village can alone rescue him from his selfish, improvident and unrestrained life. The mill hand is a villager, and a villager he will be. The reason why he loses *morale* in the city is that he is divorced from his group scheme of values, his institutional setting.

Our mills and factories seem as conservative and stay-at-home as our villagers. The factories should go a certain distance, exploit new opportunities in the interior of the country, and reach labour nearer home. Industry and cultivation of the land have to a large extent entered into partnership in Belgium. A high proportion of its workers, in factory, mine, office or shop, continue to live on the land, to cultivate their own plots in their spare time, with the assistance of their wives and children. That this has been possible is due to the high development of the vicinal railway system, light railways or tramways laid at comparatively small expense along the roads,

and now reaching a total length of 2,706 miles. The development of light railways, of canals, as well as motor transport, might create new industrial centres in the country, each with its zone of influence, from which every morning the network of cheap communications may gather in the mass of labourers and exchange the goods of the town for those of the village. The labourers will go where there is employment. They will not bring down the wages of field labour by competition. The standard of living in the villages will be raised. On the other hand, the growth in numbers of a floating immigrant population will not perpetuate the present deplorable living and unhygienic conditions in the industrial centres. Industrial development in India is gradually assuming a form of nodal congestion, and the present distribution of railway communications as well as neglect of waterways and of cheap transport on the country side are contributing to it.

Thus the costly schemes of town-planning and industrial housing are baffled by the continuous drift of unskilled labourers to the city. The wages of the labourers cannot rise on account of increasing competition. Both housing and sanitary conditions are lowered, while the labourers also find it increasingly difficult to maintain connection with their village and their family. Thus they become habituated to slums, and their slums bring in their train other slums. Without an integration of the interests of town and village, region by region, neither town nor village can be saved from deterioration.

Dr. Gupta emphasises, towards the end of his book, the need of adapting town-planning plans and methods to the regional and social tradition. The modern city in India has grown as a parasite. It dominates the region by force and by cunning, and contributes little to its welfare. A 'tentacular city,' like Calcutta, Bombay or Cawnpore, rears its head over the debris of ruined villages and broken homesteads, and the rapid expansion in its population has been due not to natural increase, but to migration from the surrounding rural region. Not merely is village production disorganised, but the institutions and culture of the village are gradually destroyed. The village now has to depend upon the city for primary and essential social functions. The city, on the other hand, is a different social world, and cannot assimilate the social traditions and processes of the village. The family, the social group, the community have broken down, and the time-honoured practices of our agricultural civilisation have been set at naught. Social degeneration, therefore,

has been manifest in various forms. Disease, crime, family breakdown, pauperism and vagabondage all are epidemic in our new cities ; the Indian mind to-day seems to accept the liquor shop, the brothel, and the alms-house as being as inevitable as industrialism and the flimsy finery of urban existence. Dr. Gupta's penetrating study of the housing problem has explored the different phases of this perilous situation. He is not satisfied with the social survey, he has his diagnosis and treatment. Dr. Gupta suggests housing and town-planning legislation to check unregulated urban growth and cope with the present shortage of house accommodation ; his proposals about co-operative housing, and for enlarging and stiffening the housing and sanitary bye-laws, as well as zoning regulations, which are honoured more in their breach than in their observance, are wise and practical. Dr. Gupta has also sociological insight, sympathy and breadth of outlook. I am confident that his book will command wide attention and contribute much to arouse a new civic conscience in the country. Municipal councillors, sanitarians, engineers and employers will do well to consider some of the practical measures of housing and planning reform that are advocated here. Industrialism is advancing rapidly in the country ; its progress is measured by wages and profits, but the vast human scrap-heap, which it scatters wildly and disastrously, strikes fewer people. Thus deep in the background of the racial sub-consciousness there are angry hisses and red sparks of revolt. The flames spread in slack seasons and during strikes and lock-outs, but are hidden by the fumes and smoke of general fear and prejudice. Our problem is to prevent the wreck and tragedy that are now called inevitable ; to save industrialism, and adjust it somehow to an ancient people's nature. One way of adjustment consists in giving a decent home to the Indian working-man, so that he need not seek unwholesome pleasures away from home, nor his children spend most of their time near drains and dust-bins.

September, 1929.

RADHAKAMAL MUKERJEE.

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PART I
THE HOUSING PROBLEM



LABOUR AND HOUSING IN INDIA

CHAPTER I

THE DEVELOPMENT OF THE BIG CITY

Migration.—The relation of life to environment is one of constant struggle, but this struggle is often sought to be avoided by means of migration. Indeed, migration is as old as the early beginnings of life itself. The migrations of birds and animals in search of food have been the subject of patient scientific investigation. They are connected not only with changes in food supply, but also with the need for expansion during the breeding season. The primitive man had similarly his wander-lust, but, as his locomotion was slow, migration involved the output of a much larger amount of energy. As a result also of conflict between wandering tribes mortality became much heavier. Thus the expensive habit was gradually given up, though it still persists in sparsely settled forests and wildernesses, which are the abode of hunters and shepherds. The wanderings of people, like those of animals, are usually from cold to warmer regions, from warm to temperate lands, and from temperate lands to the fringes of the sea.

Causes.—In early times sudden climatic changes led to the movement of hordes and tribes of far-reaching importance. Huntington, for instance, attributes, in his *Pulse of Asia*, the incursion of Central Asiatic tribes into Europe and India to the desiccation of that region. Migrations have also been due to the wasteful use of the resources of the earth. Thus indiscriminate, unregulated grazing has led to the sterilisation of pasture lands, which has kept the shepherds always on the march for 'fresh woods and pastures new'; or, again, early migrations were due to the wasteful methods of agriculture followed by the tribes. With increase in the knowledge of agriculture and the domestication of animals, people came to be settled in fertile river valleys and grassy places; and it was here that they gradually developed stability in social life and

relations. It took many ages for people to learn to maintain an increasing population on a given territory, and, until this became possible, wars of conquest were the rule and there were no peaceful means of migration.

Concentration of Population.—Within a given territory there were in operation causes which led to a constant shifting of the population due to the advancing specialisation of industrial and social functions. The result has been a continuous and persistent agglomeration of people in selected cities which afforded some special advantages ; and, accordingly, ancient and mediæval, as also to a great extent even modern, history is more or less a chronicle of the varying destinies of important cities and those who lived in them.

When peace and security were uncertain, on account of the unsettled state of the country, population was diverted towards the seats of kings, or the headquarters of strong local chiefs who could afford protection to those who lived under their patronage. This has been the cause of the alternate growth and decay of many places during the Ancient and the Middle Ages in Europe and India as elsewhere. Gradually, as society became stable and agriculture and industry flourished, men came to swarm together in sites where the hills meet the valley or on the junction of roads and rivers, where traders may carry on a brisk business. Thus marts developed into towns. In India towns develop out of weekly markets or periodical fairs, which form a most important economic feature of every agricultural country. Even in the age of modern railways, fairs are a necessity in rural districts. Trade and industry give birth to the professional classes. Thus the market towns attract and dignify mercantile pursuits and handicrafts. Temples are also built by the side of workshops ; and thus cities grow by commerce, by arts and handicrafts, and by religion. Formerly political vicissitudes governed the rise and fall of cities ; while religious upheavals played no small part in bringing cities into prominence or decay. But now it is economic causes which play the dominant rôle in originating new cities and bringing about the decline of old ones.

Growth of Trade and Commerce.—Thus, as Gait remarked in his report on the Census of India, 1911, 'Some places developed as capitals of former ruling dynasties and owed their importance to their position as political centres ; others, situated on the great land or waterways, grew up as emporia of trade ; others again were established as strategic citadels of defence against hostile

raiders. The prosperity of many has varied with the history of the tract in which they are situated, with the changes in administrative organisation, the diversion of trade-routes, the growth or decay of harbours, the introduction of railways and the development of communications.¹ The fact that communications between a number of different places can be effected with the least cost by establishing certain centres from which roads, or that, at a later stage, railways can be made to radiate in all directions and thus facilitate distribution enormously, has helped the growth of many cities as centres of distribution. The existence of valleys, hills and plains, and the breaks of transportation which occur at national frontiers and at the junction of land and water routes, tend to limit the number and increase the size of such distributing centres. 'So we find commercial centres at the confluence of rivers, heads of navigation fords, meeting points of hill and plain, and other places where the physical configuration requires a change of vehicle.'² Such centres generally grow from their position as mere post-offices for the distribution of goods already sold to customers, to places where articles are sent for sale, and thus become the headquarters of a large and growing entrepôt trade and the seats of an intricate system of commerce and exchange. Again, the fact that a large number of people are brought together at any point for any purpose at once becomes a cause for yet other people to come. Accordingly, there has been an unmistakable tendency for the population to concentrate more and more in select places, in order to profit by the various advantages in trade, commerce and profitable employment which they offered.

The decay of agriculture and the recurring famines have been an important cause of a steady migration of cultivators and farm-labourers towards the cities in China, Russia and India. During times of scarcity and hardship the poor flow towards the cities, not only for the sake of satisfying their immediate needs, but also for the glamour and attraction which the big cities cast upon their imagination.

The Industrial Revolution.—More than all these, however, have industry and commerce contributed to the concentration of population in cities and big towns. The social and economic

¹ Sir Edward Gait, *Census of India, 1911, Vol. I, Part II.*

² Weber, *The Growth of Cities*, p. 173.

changes which followed the Industrial Revolution completely destroyed and disorganised the existing methods of production and distribution in England and Central and Western Europe. The manorial and feudal organisations had lost their strength and significance with the emergence of the powerful and well-disciplined craft and merchant guilds, which successfully regulated production, distribution and the conditions of labour in most of the towns in Europe during the Middle Ages. 'In the Middle Ages,' observes Gibbon, 'manufactures were carried on by a number of small master manufacturers, who gave out work to be done in the homes of their employees and who often combined agriculture with manufacturing pursuits. The vast enterprises of modern industry, such as railways and mills, which require a large expenditure of capital before they can begin to be in any way remunerative, were practically unknown a century ago. The industrial system was, moreover, far less complicated, far less international and far less subdivided.'¹

With the invention of Kay's flying shuttle in 1733, Hargreave's spinning jenny in 1765, Arkwright's water-frame in 1767, and further with the invention of Crompton's mule in 1779 and Cartwright's power-loom in 1785, the cotton industry was wholly revolutionised; while the discovery of Davy's safety lamp in 1815, the improvement of the steam-engine by Watts and Stephenson, and the discovery of a host of other useful instruments, gave a remarkable impetus to industry and production in general.

Growth of Industrial Towns.—Thus the new discoveries and inventions necessitated, and the railways and steamships facilitated, the concentration of labour and capital in industrial centres. Proximity to coal and iron mines became an important condition of the fitness of a place for industrial growth. Accordingly, a number of towns having coal or iron mines or raw materials grew up rapidly, and attracted towards them large numbers of people from the surrounding country for the sake of lucrative employment and for purposes of trade and commerce. So rapid was the flow of population towards the urban areas, that, whereas in 1851 only half of the population of England and Wales lived in urban areas, now no less than four-fifths do so. Some of the insignificant towns have doubled, trebled and even more than quadrupled their population in

¹ Gibbon, *Industry in England*, p. 325.

less than a hundred years. No wonder, therefore, that the problem of housing this ever-increasing population assumed a very acute form in most of the industrial towns, which developed 'slums, with back-to-back houses, or surrounding little, sunless, unpaved courts and narrow alleys of damp and dreary dwellings.'¹

Sir Arthur Newsholme pertinently observes, 'Urbanisation in the earlier years meant dense overcrowding and insanitation; and that it is still an influence adverse to health may be gathered from the information given by the Census of 1911, that over eight times as large a proportion of the urban as of the rural population of the country live in one-roomed tenements, and nearly twice as large a proportion live in two-roomed tenements; while the proportion of one-roomed tenements which are overcrowded, in the sense of having more than two persons to a room, in towns is seven times as great, and of two-roomed tenements is twice as great, as in the country districts.'²

Growth of London and Paris.—To take but a few examples, within about 85 years, from 1801 to 1887, both London and Paris more than quadrupled their population, while the house accommodation generally lagged behind. In fact, the Industrial Revolution meant the subjection of large masses of working-class families to evil conditions of housing and work in crowded and insanitary dwellings and factories.

The following figures will clearly indicate the disparity between the growth of population and houses:

000 omitted

CITIES	1880		1821		1801	
	POPULATION	NO. OF HOUSES	POPULATION	NO. OF HOUSES	POPULATION	NO. OF HOUSES
London ..	4,215	520	1,379	170	959	130
Paris ..	2,240	767	714	288	..	..

Growth of Other Industrial Towns in the West.—Newcastle and Manchester multiplied their population five times, while Birmingham and Liverpool more than six and seven times respec-

¹ *Report of the Land Enquiry Committee, England, 1918, Vol. II, p. 2.*

² Sir Arthur Newsholme, K.C.B., M.D., *Public Health and Insurance, p. 7*

tively, in the same period, 1801-87. Warsaw and Brussels trebled and quadrupled their population in but fifty-five years, following 1831; while Berlin, Philadelphia and New York have beaten all records by multiplying their population ten, fifteen, and twenty-five times respectively, within eighty years, following 1800. The industrial towns of the New World, Cincinnati and Chicago respectively, increased their population over 85 and 112 times within seventy and forty years preceding 1900. This phenomenal growth of population in cities has been due largely, if not entirely, to industry and commerce, which attracted a large labour force and the professional classes engaged in various other occupations.

The Effects of Industrialism on Urban Life.—The problem of securing proper house accommodation for this ever-increasing population has naturally involved great difficulty, and given rise to congested and insanitary conditions, particularly in the bigger industrial cities. The Liberal Land Enquiry Committee in England has pointed out, in the urban section of its report, that there are 14,000 one-roomed tenements in Glasgow, in each of which the occupants number from two to six; and that there are 22,000 two-roomed tenements, in which from seven to twelve, and even more are herded. In Birmingham 90,686 persons are living at the rate of more than two persons per room; the number has been rising, and 1,662 persons out of these are living at the rate of more than four to a room. In London 30 per cent of the families are living in dwellings containing three or more families apiece, while 16·1 per cent of the people are living under overcrowded conditions. But with the age of water power gone and the discovery of electricity, which can store up energy and carry power to distant places at comparatively insignificant cost, and with the transport of coal and other raw materials made easy and cheap, the overmastering forces tending to establish industrial towns at particular places are disappearing. On the other hand, the advantages of trade and commerce in the way of sale and distribution of goods manufactured in factories, and the facilities of banking, etc., which commercial centres offer, are asserting their real importance. These advantages in favour of commercial cities would have been decisive, if the demand of land for commercial purposes had not made it more expensive for people needing it, either for factory sites or for the houses of the work-people to be employed in factories. Accordingly, in the twentieth century, pertinently

observes Prof. Pigou: 'Industrial towns tend not to coalesce with commercial towns, but to be attracted into their near neighbourhood as satellites are drawn to the central sun, while the villages of the work-people are tending to scatter both round the central sun and the minor satellites of the encircling industrial towns.'¹ But this movement has been extremely slow, and the results achieved so far, though quite gratifying, are not sufficient to justify any conclusions with regard to their adaptability in every country.

Conditions in India.—Here in India we find the same forces of industrialisation and urbanisation being repeated to-day. In fact, India is at present in the throes of an industrial revolution. Her geographical seclusion, her fertile soil which yields abundance of food with comparatively little toil, as also her enervating climate which encourages ease and luxury, had all combined to postpone the evil day. But the forces of industrial concentration have now proved too strong, and we find ourselves in the grip of an industrial revolution. The small cottage and home industries are languishing, and the decay of supplementary occupations has weakened the position of the small farmer. The agriculturist works on meagre resources, and these are not equitably distributed. Thus there arises a class of landless proletariat. The continued subdivision and fragmentation of holdings has resulted in a severe congestion in agriculture. Besides, the growth of population has given rise to a numerous class of landless labourers, who are beginning to find agricultural labour altogether unpaying. Moreover, the increasing use of agricultural machinery, besides improving the crop, is gradually setting free a number of workers for industrial work, and this tendency might reasonably be expected to become more important in the future. Ordinary agriculture is thus becoming rather unprofitable. Both the tenant and the agricultural labourer are feeling the pinch and migrating to the towns. The joint-family system renders such migration both profitable and easy to a tenant, because the land is incapable of supporting the growing family with the old methods. By migrating to the town, he not only lightens the burden on the land, but is not infrequently able to send home monetary help for minor improvements in agriculture. The agricultural labourer, similarly, feels that he can get more remunerative employment in the city, and thus improve his social status when he returns.

¹ Pigou, *Essays in Applied Economics*, p. 109.

to the land. Thus we find in operation a regular rural exodus to the city.

A new class of capitalists is springing up in the country, who can command a large industrial capital but who refuse to move from the industrial centres, where they find a large labour market and all the facilities of trade, banking and social life impossible to obtain in remote districts, where raw materials might have been cheaper.

The process of urbanisation is going on surely, if slowly, and the tendency of the population to congregate in increasing proportions in the cities and larger towns, as compared to the towns below 20,000 inhabitants, is markedly manifesting itself decade by decade.

The following table shows the percentage growth of the same towns arranged in different classes in the last decade, 1911-21:¹

CLASS OF PLACES	NO. OF PLACES IN 1921	VARIATION 1911-21	
		ACTUAL	PER CENT
*Total	687,935	2,529,614	.8
Urban Territory	2,313	2,716,713	9.1
*Towns having:			
100,000 and over	35	1,135,922	16.1
100,000 to 500,000	54	507,468	16.9
20,000 to 50,000	19	416,731	7.6
10,000 to 20,000	450	45,629	.7
5,000 to 10,000	885	286,498	4.8
Under 5,000	690	324,465	16.2
Rural Territory	685,622	187,099	.1

Tendencies in the Provinces (Bombay).—If we study the same question by provinces, we find that in Bombay and Bengal, where industrial progress has been comparatively more rapid, the same tendency is manifesting itself in a more intense form. Here the proportions of population living in towns of 50,000 and over is increasing much more rapidly than those living in the middle-sized country towns of between 5,000 and 10,000. Coming to individual cities, we find that they are showing a still greater tendency to multiply their population, while new industrial towns are springing up every decade. Examining only a few of these, we find that within the last 50 years some of them have doubled, trebled, and even quadrupled their population.

¹ *Census of India, 1921, Vol. I, Part I, p. 65.*

Bombay, the premier city of India and the centre of a large textile industry, trebled her population in the 55 years preceding 1888, and has added another 50 per cent and more since. But these figures do not bring out fully the extent of Bombay's growth. For the actual growth of the city we have to look to its suburban towns also, which supply most of the labour force to run the industries of the city. Some of these towns have more than quadrupled their population during the 50 years preceding 1921.

The actual figures of the growth of Bombay city and suburbs are given below:¹

NAME OF PLACE	IN THOUSANDS			REMARKS
	POPULATION IN 1921	POPULATION IN 1872	PERCENTAGE VARIATION 1872-1921	
Bombay City ..	1,175.9	644.4	82.5	1 in 1911
Bandra ..	29.3	7.2	307	
Kurla ..	26	4.5	477.8	
Thana ..	22.6	14.3	58	
Kalyan ..	17.8	12.8	39	
Ghatkoper Kiroi ..	8	..	..
Santa Cruz ..	7	..	..
Total, Bombay and Suburbs	1,286.6	681.2	88.9	

Unlike London and Paris, house accommodation in Bombay, as in most other big industrial cities in India, has fallen lamentably short of requirements and given rise to a large population of slum-dwellers. It is true that the Municipality, the Improvement Trust and the Development Directorate, recently created, are doing their mite to relieve congestion; but, as Mr. Sedgwick, the Census Commissioner for Bombay, has rightly remarked, conditions are as yet far worse than those of London. Coming to other important provincial cities, we find that Poona, the centre of many small industries, increased by 71 per cent since 1872; while Ahmedabad and Sholapore, other important centres of the textile industry in the presidency, have more than doubled; and Karachi, a big commercial and industrial city and a rising port, has quadrupled her population during the same period.

¹ *Census of India, 1921, Bombay.*

The Growth of Cities in Bengal (Calcutta).—Coming to Bengal, we meet with similar conditions. Calcutta city proper, although it is undoubtedly the biggest commercial and business centre in Northern India and one of the biggest in the East, has few large mills and factories, such as Bombay has, and 'the industrial population is spread along the river for some distance even beyond the suburbs, so that Calcutta as a centre of population is still nearly twice as great as Bombay. The average density of the population of the city and suburbs is 34 persons to the acre, and of the city alone, 69. The density of the population of the county of London is 63 per acre, but, on the one hand, there is no part of London where the density is much more than half that in the Jorasanko ward in Calcutta, nor, on the other, does London contain any area, bearing so large a proportion of the whole, which has so low a density of population as Ballyganj.'¹ The problem of congestion in Calcutta is, accordingly, much more acute than that in London, and, coupled with the fact that it has higher buildings than London and has a much less elaborate and poor sanitary and conservancy arrangement, renders it peculiarly unhygienic. The increase in the population of Calcutta city in the last two decades has been only 6·3 and 2·8 per cent, and about 44 per cent in all since 1872. As a matter of fact, Calcutta has reached almost the limit of expansion, and the growing population can either seek habitation in the suburbs or drive out the poorer and the less efficient thither, to make room for them. In fact, thousands of clerks now live outside the city in the suburbs and come in daily to their work in the city; and the total number of season-ticket holders to-day is nearly three times as many as it was ten years ago. If we, therefore, include the suburbs,

NAME OF PLACE	POPULATION IN THOUSANDS		PERCENTAGE VARIATION DURING 1872-1921
	IN 1921	IN 1872	
Calcutta and Fort ..	907·9	633·0	43·3
Cossimpur and Chitpur ..	56·5	54·3 ^a	128·1
Manicktola ..	67·4		
Garden Reach ..	45·6	9·3	390·4
Howrah ..	195·3	84·1	132·4
Calcutta with Suburbs ..	327·5	800·7	65·8

¹ *Census of India*, 1921, Vol. I, p. 73.

² Approximately; exact figures are not available.

which we must, to find out the real growth of the city, and which, as a matter of fact, contain all the mills and factories of Calcutta, we find that it has outstripped even Bombay. The actual growth of the city and the suburbs, or greater Calcutta as it has been called, is summarised in the table at foot of previous page.

Some Other Country Towns.—Dacca, the only other big city in the presidency, is at least three centuries older than Calcutta, and was perhaps as large as it is now before Calcutta was anything but a collection of rural villages. It was once the centre of a world-famous cotton and silk industry, which has since practically died out. It has been the headquarters of Muslim *nawabs* and kings of Bengal, and a very prosperous and well-known town. Its present growth, 74·1 per cent during 1872–1921, is due entirely to the thriving agricultural industry of Eastern Bengal, and has accordingly none of the evils and disadvantages of an industrial city. It has neither a huge floating immigrant population, similar to Calcutta or Bombay, nor is the disparity in the proportions of the sexes at all marked.

Conditions in Madras.—Coming to Madras, the third largest city in India, we find that it had a population of 526,911 in 1921. It is an important distributing centre of the province and a good seaport. The density of the population is as high as 161 persons per acre in the heart of George Town, an important part of the city, and as low as 2 per acre in Fort St. George. It has a notoriously high death-rate, which exceeded the birth-rate by no less than 11·7 per cent in the last decade. The city itself is insanitary, and very much overcrowded in parts. Although not an important industrial centre, it has many industries, the chief of which are cotton manufactures, gold and embroidery works, and leather manufacture. Madura, the centre of an important cotton industry, and Trichinopoly, a big distributing and trading centre, are other noteworthy cities in the presidency. The former has almost trebled since 1872, while the latter has increased by about 57 per cent in the same time. The housing conditions in these two towns are most abominable. It will be altogether incredible to a man who has not seen the slums of these places to be told that single rooms, of the size 6ft. by 5ft. by 5ft., are frequently occupied by three to four persons! This is due to the generally low standard of wages and high rents in the presidency.

Industrial Growth in the United Provinces.—Passing on to the United Provinces, we find that, although there are quite a

large number of cities deserving the appellation, Cawnpore is the only place which owes its growth to trade and industry alone. It is one of the largest railway junctions in the province and the biggest collecting and distributing centre. Over and above this, Cawnpore has considerable important industries, being the centre of cotton and sugar factories, flour mills, tanneries, leather, tent and brush factories, iron foundries, printing presses, chemical works, etc. During the 50 years 1871-1921 it has grown by 71·9 per cent. The housing conditions are most unsatisfactory—more than 64 per cent of the population living in single-room tenements, at the rate of four persons per room. Even in the best quarters, supplied by the Cawnpore Woollen Mills, as many as eight to ten adult labourers flock into a single room 10 ft. by 12 ft., which serves the purposes of a kitchen, a store, a living and a sleeping room, all in one. The conditions in *basties* and other labourers' *mohallas* are beyond conception. No wonder that the residents of these places are born only to die. The vital statistics show that in this city the death-rate has been higher than the birth-rate ever since 1918, although the population has been kept up through incessant immigration.

Benares, another important town in the province, deserves mention here, not because it is a big industrial city in the modern sense of the term, but because the overcrowding of houses in the heart of the city is one of the worst of its kind. The city has flourished as a religious centre along the banks of the Ganges from the earliest times. It has a flourishing silk and brocade industry, and brass and copper metal works, but they are carried on as cottage industries—the men working at their own houses or in small batches inside the shops of big merchants. Here five-to seven-storied houses are so crammed together that even the narrow lanes (some so narrow that they are hardly sufficient to allow two persons to walk abreast) which run through them hardly get sunshine, to say nothing of those who live inside the houses.

Development of Delhi.—Delhi, the Imperial capital, also deserves passing mention here as one of the big cities of the country. Its population, according to the Census of 1921, was 304,420, including the Cantonments and Imperial Delhi. This shows an increase of more than 75 per cent since 1881, the time of the first regular census, and a significant increase of 30·7 per cent within the last decade. This has, however, been due mainly to the expansion of the urban area after the transfer of the capital. The

density per square mile is 4,683, and there are, on an average, four persons to a house. It is an important railway junction, but has no important or considerable industries, and, accordingly, does not present any acute housing or sanitary problems at present. Small mills and factories are, however, springing up for cotton ginning, pressing and weaving, and the manufacture of sugar and leather goods; and commerce is growing up remarkably on account of the natural impetus afforded by the Imperial headquarters.

Industrialism in the Punjab.—Lahore, the seat of the Government of the Punjab, is a garrison city and an important railway junction. Its population in 1921 was 281,781, which represents an increase of 23·2 per cent in the last decade and almost cent per cent since 1881. It is the biggest industrial centre in the province, which is predominantly agricultural. Amritsar, the only other important city in the province, has also many industries, chiefly cotton and wool. Housing conditions in both these cities are unsatisfactory. Unskilled labourers and other poor people live under most overcrowded and insanitary conditions; some are absolutely houseless and pass their nights away on platforms of closed shops.¹

Cotton Centres of the C.P.—Nagpur, the seat of the Central Provinces Government, is another thriving industrial city. It has increased by 71 per cent since 1872. Nagpur is an important railway junction and the centre of a huge cotton spinning and weaving industry. Jubbulpore is the next important trading and commercial centre in the Central Provinces. It has got considerable industries, and has risen by over 96 per cent since 1872.

Growth of Rangoon.—Last, but not least, does Rangoon, the premier city of Burma and the seat of the Burmese Government, deserve special consideration at this place. Rangoon is a thriving commercial centre and an important seaport. It has a flourishing ship-building industry and woodworks. The manufacture of dye-stuffs and chemicals is also carried on on a large scale. Its population is further swelled by a multitude of labourers employed in docks, railway works, trams, etc. The city has grown from a small town of 98,745 inhabitants, in 1872, to the fifth biggest city in the country in 1921, and has grown three and a half times within forty years. The only other city in India which shows a similar growth is Karachi. Rangoon, like Bombay and Calcutta, presents a very serious housing

¹ *Census of India, 1921, Punjab and Delhi*, p. 369.

shortage, which has led to overcrowding of the worst type. More than two-thirds of the people residing in the city have their birth-place outside the city, while considerably more than half outside the Province of Burma.

The following table shows the growth of Indian cities since 1872:

000 omitted

NAMES OF TOWNS	POPULATION IN 1872	POPULATION IN 1921	PERCENTAGE VARI- TION FROM 1872-1921
Calcutta, with Suburbs	800.7	1,327.5	65.8
Bombay with Suburbs..	681.2	1,286.6	88.9
Madras	397.6	527.0	32.5
Hyderabad	367.4 ¹	404.2	10.0 ¹
Rangoon	98.7 ¹	340.0	246.4 ¹
Delhi	173.4 ¹	304.4	75.5 ¹
Lahore	157.3 ¹	281.8	79.2 ¹
Ahmedabad	128.5	274.2	113.2
Lucknow	209.6	240.6	12.9
Sholapore	53.4	119.6	123.9
Karachi	56.8	215.8	282.2
Cawnpore	125.9	216.4	71.9
Poona	125.6	176.7	48.8
Benares	178.3	198.4	11.3
Amritsar	157.9	160.2	5.5
Nagpur	84.4	145.2	71.9
Madura	52.2	138.9	165.9
Trichinopoly	76.5	120.4	57.4
Dacca	68.6	119.5	74.1
Bangalore .. ..	..	237.5	66.4

The Housing Problem in Industrial Cities.—A special feature of the foregoing table is that the industrial and commercial cities have grown much faster than the others. These cities, as would be clear from the preceding discussion, present an altogether peculiar housing problem, not experienced by smaller towns or country places. Again, if we enter into details, we shall find that each of the big cities presents a distinctive problem of housing, which requires its own solution by a careful survey of its location, means of communication and industrial possibilities. It is, however, still possible to make certain generalisations on the basis of similar conditions and circumstances and more or less common needs. Evidently enough, big commercial and industrial cities are generally hard pressed for space. The limitation of ground space and high land values are, therefore, always to be kept in mind in any scheme

¹ Relates to population in 1881 and to the period 1881 to 1921.

to relieve congestion or improve insanitary conditions in them. Another common factor in the class of cities under consideration, is the presence of a large immigrant population, which needs temporary lodging comforts rather than home and corporate life and homely surroundings and conveniences. A floating population is a despair to the house-builder, and this, more than any other factor, has stood in the way of the success of housing schemes in Indian cities.

Effects of Social Customs on Housing Conditions.—

The rigidity of the *purdah* system, which is a special feature of social life in India, lends further complexity to the housing problem in our cities. The womenfolk in Indian cities are exposed, in the majority of cases, to unhealthy and insanitary conditions. The highly gregarious and communal instincts of Indians, coupled with the scarcity of ground-space in large cities, lead to overcrowding of houses and the construction of stuffy, ill-lighted and ill-ventilated rooms surrounding a small courtyard, so that the ladies could be secure from outside gaze. Deprived of all fresh air or open-air exercise of any kind, it is no wonder that the poor girls fall an easy prey to tuberculosis and other respiratory diseases. The following remarks of Dr. H. M. Crane, on the sanitary conditions of Northern Calcutta, are true of all Indian cities, and we, therefore, make no apology to quote them at length. He observes, 'No survey of an Oriental city can possibly ignore the potent influence of the *purdah* system on its domestic architecture. Obviously, the house is directly inspired by the necessity of securing absolute privacy for the ladies of the household. To effectually screen the inner apartments from the vulgar gaze, air and light are shut out, and the rooms rendered unfit for human habitation. It is very common to find the whole of the lower story of the *senana*, even in large and valuable houses, given up to godowns and kitchens, the inmates frankly admitting not one of the rooms is fit to live in. I must confess I am astonished at the average kitchen. It is, in a large number of houses, a gloomy, stuffy den, full of acrid smoke, and yet the ladies of the house have to spend hours in these very unpleasant surroundings. The entire absence of chimneys results in an atmosphere which is almost unbearable when cooking is going on in a particularly ill-ventilated kitchen. . . . Tuberculosis is especially rampant in this area. In this area again there are a good many four-storied tenements, and some of five and even six ; while

Edinburgh has lowered the municipal building limit to three stories, above which no tenement houses or flats are now constructed, we have no such prohibition at all. How many stories would delicate mothers climb without getting strained? Thus women, both middle-aged and old, as well as young children, stay at home to avoid stairs, and so get out of health for want of exercise and in other ways.'

The labouring classes, who cannot afford even such dens for their womenfolk in big cities, generally leave their wives behind in the country and seek relaxation in vice and immorality. In his report on the working of the Rangoon Improvement Trust for 1922, the chairman frankly admits that the average labourer, and even the middle-class man, prefers to live in the suburbs, where he can get home life and some privacy, to tenement houses and flats in the city, which are occupied mostly by single men or outsiders, who come to the city temporarily for purposes of trade and commerce and never bring their wives with them. This accounts for the serious disparity in the proportion of the sexes in most of our big cities, and the consequent growth of corruption, prostitution and vice. These are serious problems, and should receive the greatest attention from both legislators and social reformers. Their solutions may be sought in model tenements, garden cities or suburbs; or such problems might require a more radical treatment by way of re-planning and wholly re-arranging the sites for different purposes; but these will be discussed in subsequent chapters.

CHAPTER II

THE RAPID RISE OF THE MILL AND MINING TOWNS

Growth of Small Industrial Towns and Their Problems.—Hardly less conspicuous than the emergence and the growth of the big city, with all its attendant evils of congestion, insanitation and disease, has been the sudden and rapid growth of mill and mining towns all over India. As a matter of fact, they are the backbone and tissue, the foundation, on which the structure of the bigger towns and cities is built, and on which they rely for their maintenance and prosperity. It is they which supply mostly the fuel and raw materials for the factories which have made the towns big and the cities bigger. It is they, again, which perform the simpler and the cruder operations connected with manufacture and industry. But large-scale production and specialisation have not left even these alone; so that we find these mill and mining towns specialising in and developing their own industries, and growing almost precipitately. The phenomenon of their appearance is, however, much more modern, and there are few which have any history previous to 1872; while many have been brought into existence in the twentieth century. As a rule they have altogether new and distinct characteristics, different from those of the country towns and over-grown villages. We have, accordingly, to be very cautious in drawing conclusions from census statistics, which generally make no distinction between the two. The census statistics, by the way, are also obsessed by the fact that new places which were not included in the category of towns before, and which grow up during the intercensal period, are included in the category of towns in the succeeding censuses, and to that extent give an undue colour to the growth of urban population. Although the mistake due to this inconsistency in classification is not very great, to that extent it makes the comparisons unreal. If we make allowance for this incongruity we shall find that the urban population as a whole in India, insignificant as it is as compared to the rural population, is not showing any marked tendency to grow.

The following table gives in a summary form the actual and percentage growth of the urban and other population since 1891 in India :

DISTRIBUTION OF POPULATION IN GROUPS OF TOWNS ACCORDING TO SIZE AND IN RURAL TERRITORY, FROM 1819 TO 1921¹

CLASS OF PLACES	ACTUAL POPULATION IN THOUSANDS				PER CENT OF TOTAL			
	1921	1911	1901	1891	1921	1911	1901	1891
Total population ..	316,018	313,488	294,317	287,006	100	100	100	100
Urban Territory ..	32,419	29,702	29,200	27,171	10.2	9.5	9.9	9.9
Towns having :								
100,000 and over								
(Cities) ..	8,212	7,076	6,606	6,173	2.6	2.2	2.2	2.2
20,000 to 100,000 ..	9,343	8,519	8,319	7,713	2.9	2.8	2.9	2.7
20,000 and under ..	14,768	14,107	14,276	13,295	4.7	4.5	4.8	4.6
Rural Territory ..	283,599	283,786	265,117	259,835	89.8	90.5	90.1	90.5

The Significance of Census Figures.—Although India retains its rural and agricultural preponderance, it will be clear, from the foregoing table, that the class of towns containing 20,000 to 100,000 inhabitants is growing most rapidly and increasingly of all. The slight fall in 1911 was due entirely to the virulence of plague in most of the industrial towns, and the consequent temporary migrations of the inhabitants to rural tracts where the rigours of the epidemic were not equally severe. This also explains the slight gain in that decade by the rural territory, which otherwise shows a continuous, if slow, decrease.

The Incongruity in Census Figures.—The presidencies bring out the same phenomenon in more clear relief. But, as has been hinted before, this does not bring to the fore at all cogently the real strides that the population of the mill and mining towns has taken in India. The census statistics contain a large number of towns which are stationary, if not actually decaying, and have been included in the category of towns merely because they contain a specified number of inhabitants. Most of these towns have been the capitals of former ruling dynasties, and owed their importance to their position as political centres, while others were established as citadels of defence against hostile raiders. With the change in the administrative organisation, the displacement of population, the diversion of trade routes, the introduction of railways and the development of communications, they have lost their original

¹ Compiled from table in *Census of India, 1921, Vol. I, Part I, p. 65.*

significance and are breaking down with the lapse of time. Others again owe their development and importance to religion and sanctity, and, as such, have already reached their zenith and are at present more or less stationary, if not actually losing their pristine importance and religious charms, by the growth of materialism among the people. If we, accordingly, leave out of consideration such places, and look to the growth of towns which owe their importance to industry and commerce, which alone deserve to be called towns in the modern sense of the term, and with which alone we are here concerned, we find that they have doubled, trebled and quadrupled in population within the space of a score of years.

Comparison between an Industrial and Country Town.—Mr. Thompson, in his report on the Census of Bengal for 1921, has attempted to compare the two classes of towns as referred to above from the statistics which he collected for Bengal. The actual size of the average town of each class in Bengal since 1872 has varied as follows:

TOWNS IN BENGAL	ACTUAL POPULATION					
	1921	1911	1901	1891	1881	1872
The average country town ..	13,860	13,587	13,034	13,029	12,798	13,523
The average commercial or industrial town ..	30,846	28,888	22,199	20,009	17,233	18,742

The following figures indicate the percentage growth of the same class of towns between each intercensal period since 1872:

TOWNS IN BENGAL	PERCENTAGE VARIATION					
	1911 to 1921	1901 to 1911	1891 to 1901	1881 to 1891	1872 to 1881	1872 to 1921
The average country town ..	2	4.2	0	1.8	-5.3	2.5
The average commercial or industrial town	6.8	30.1	10.9	16.1	-8.1	64.6

We have no data to make similar comparisons with reference to the growth of the two classes of towns in the other provinces. It is, however, certain that the conditions in other provinces are not appreciably different from those in Bengal.

Classification of Industrial Towns.—Having established the general proposition that the commercial and the industrial towns as a whole are growing rapidly and at a considerably greater speed than either the country towns or the rural tracts, let us consider the growth and development of some individual towns and their causes. The phenomenal growth of our towns has been due to a variety of causes. It would be worth while at this place to go into the more important of them and see what effect they had on the growth of each particular town. For the sake of convenience, these causes might be divided into the following four main heads, each of which will be discussed separately in the subsequent pages: (1) Railways, (2) Mines, (3) The cotton industry, (4) The jute industry.

The Effect of Railways.—In the latter part of the nineteenth and the present century in India, as in England and the Continent a little earlier, railways have played a very important part in the maintenance and growth, as also in the emergence and development, of towns. As the premier means of transport, railways afford great and invaluable facilities for the exchange of goods and services. Almost all our important towns to-day are connected by one or the other railway line, and no town without it finds a chance of growth or prosperity. Not only have railways considerably reduced the undue hardships of people during times of famine, and almost put an end to the destruction of life through sheer starvation by bringing grain to the famine-stricken parts from the comparatively favoured tracts, but have also afforded an excellent alternative employment in times of bad harvests; so that, according to the Industrial Commission, 'Famine now connotes not so much a scarcity or entire absence of food, as high prices and a lack of employment in the affected areas.'¹ They have, moreover, added immensely to the prosperity of the country through the enormous extension of commerce and industry, and thus indirectly helped the growth of population in towns and cities.

Railway Towns.—Railways have also given birth to a number of towns, which have grown up round and near the huge establishments and workshops scattered all over the country for the storing, repairs and construction of the rolling-stock and other necessities, and which employ a huge amount of labour force. Thus

¹ *Report of the Indian Industrial Commission, 1918, Ch. I, para. 5.*

Purulia and Jamalpur, in Bihar and Orissa; Asansol, Khulna, Kharagpore, Kanchrapara, Lillooah and Saidpur, in Bengal; Bezwada, in Madras; Gondia and Bilaspur, in the Central Provinces; and Sukkur, Nasik, Rajkot, Thana, Bijapur, Bhusawal, etc., in the Bombay presidency, owe their growth and present importance mainly to their position as important railway centres. But this is not all. The size and importance of our big cities would not have been half of what they are if they had not generally been the important railway junctions that they are. Railways have also brought about a great mobility of labour. Large industrial centres, like Bombay and Calcutta, and the extensive plantations of tea and coffee, are almost entirely dependent upon them for providing the labour which cannot be obtained locally.

The following table gives the names and populations of some of those towns which owe their importance and growth mainly to railway works:

NAME OF TOWNS	POPULATION IN 1872	POPULATION IN 1921	PERCENTAGE VARI- TION 1872-1921
Asansol	14,906 ²	26,499	78 ¹
Kharagpore	18,957 ²	25,280	33 ²
Jamalpur	14,312	23,113	61
Khulna	8,667 ²	16,049	85 ²
Jalpaigori	6,598	14,520	120
Saidpur	5,848 ¹	13,479	130 ¹
Bogra	5,872 ¹	12,322	110 ¹
Bilaspur	4,898	24,295	396
Damoh	8,189	15,296	87
Jamalpur (B. and O.) ..	10,453	24,827	138
Purulia	5,696	22,161	289
Nasik	22,436	42,756	91
Rajkot	11,979	36,057	201
Sukkur	13,318	42,759	221

Mines and Mining Labour.—Mining is a comparatively new industry in India. But the rate of its growth is quite promising. The actual number of people supported by mining industries has risen, from 126,807 in 1901 to 398,968 in 1921, which shows an increase of over 200 per cent within twenty years. Of the coal mines, the Jherria coalfield, in the Manbhum district of Bihar and Orissa,

¹ Refers to population in 1901 and variation, 1901 to 1921.

² Refers to population in 1911 and variation, 1911 to 1921.

³ Refers to population in 1891 and variation, 1891 to 1921.

supplied over 50 per cent of the total annual output of coal in India and gave employment to over 117,000 people in March, 1921. Most of the labour force is not indigenous and is extremely migratory. In July and August, when the paddy is being transplanted, and in November, when it is being cut, the mines are invariably working short-handed. Anything in the nature of a scarcity in the neighbouring districts is a blessing to the coalfield. As a rule, the miner dislikes his business and comes to the colliery only to pass difficult times. This is not strange, in view of the horrible conditions under which he has to work and the filthy open places in which he has to live.

Housing Conditions in Coal Mines.—A committee, appointed by the Bihar and Orissa Government in 1917, to enquire into their condition, rightly observed that 'There are no amenities in the coalfield. The *dhauras* (lodgings) are neither beautiful nor healthful. The labourer enjoys no privacy in his domestic life. He has to carry his personal belongings about with him, even down the mine, for fear of theft. His only pleasure is that which can be purchased at the liquor shops. There is no inducement for him to remain at the colliery a minute longer than he can help.'¹ The only other important coal area in Bihar and Orissa is at Girdih, in the Hazaribagh district, which supports about 32,000 people. Unlike the case of Jherria, here the labour is almost entirely indigenous. The mines are worked by the East Indian Railway Company, and the housing problem is not as acute as at the Jherria coalfield, because the labourers generally come to the collieries from their villages only during working hours; moreover, the E.I.Ry. Co. treats its labourers with more consideration than many others. Some other companies are also coming to the field, but are not yet important. The Ranigunj coalfield in Bengal supports over 97,000 people and is owned chiefly by Anglo-Indians or Europeans. Asansol, the main centre of the industry, has almost doubled its population in the twenty years following 1901. Bankura is another town of importance in which coal-mining is carried on. It has also grown appreciably since 1872. The housing conditions in the Ranigunj coalfields are as deplorable as at Jherria, but the disparity in the proportion of the sexes is not equally marked because a large number of women are

¹ Report of the Committee regarding Housing of Labourers in Bihar and Orissa, 1917.

employed in Ranigunj to carry coal from coal-pits. The Singrahnī coalfields, in Hyderabad state, and the Pench Valley mines in the Central Provinces are the only other important collieries in India. Both the mines are making rapid progress, especially the latter, which has more than trebled its labour force within the last decade.

Growth of Jamshedpur.—Coming to iron mines, we find that the Singbhum and the Mayurabhanj districts of Bihar and Orissa are practically the sole repositories of iron ore in India. Jamshedpur, the centre of the Tata Iron and Steel Works, in the Manbhum district of Bihar and Orissa, is, as Mr. Tallents puts it in his report on the Bihar and Orissa Census for 1921, 'a creation of yesterday, or rather it is still being created to-day. Its romance is a romance of the twentieth century. Only fifteen years ago when, in sequence of the discovery of large quantities of iron ore of the best quality, Mr. Jamshedji Tata projected his iron and steel works, Sakchi and the other villages, which have since been absorbed into the town, were indistinguishable from hundreds of other agricultural villages. It was not till 1910 that the plant was actually put up, and at the Census of 1911 Sakchi had a population of 5,672 persons, mainly engaged in the erection of blast furnaces. Since then the town has grown by leaps and bounds, and showed a population of 57,360 in 1921—an increase of over ten times in but ten years.'¹ Jamshedpur is now the fourth largest town in the province, and has since attracted many subsidiary industries in and around the Tata Works, which are all flourishing. There are few places where East meets West, or the ancient confronts the modern, in more violent contrast than at Jamshedpur. Here are congregated not only men from almost every part of India, but even from distant U.S.A., from the European countries, from China, Japan, Canada and Australia, all of whom work side by side on the works. The town has no municipality established by the government, but the company looks after the health and welfare of the employees, provides them with fair house accommodation, graded according to earning, and also sites for houses in the coolie lines, where the workers have made their own huts on ground let by the company at a nominal rent. Welfare work² is carried on on an extensive scale, while suitable health recreations and other comforts are provided free of cost by the

¹ *Census of India, 1921, Bihar and Orissa, Part I, pp. 89-90.*

² This has been stopped since 1923, on account of the bad financial condition of the company.

benevolent autocrat, the Tata Company. The town itself is beautifully laid out, with parks, gardens, recreation grounds, free schools and dispensaries—all provided by the company.¹

Rapid Development of Jute Mill Towns.—Many towns in Bengal owe their phenomenal growth to the increasing importance of the jute industry, which is practically the monopoly of Bengal in the whole world. The industry is, however, confined to the banks of the Hoogly, and most of the jute mill towns are situated on a belt along the river, beginning with Howrah and Calcutta. The industry employs in all about 493,000 persons in the spinning, pressing and weaving processes. A large quantity of the raw produce is, however, exported to Scotland for manufactures, and the greater portion of the industry even in Bengal is in the hands of foreigners, chiefly British. Some of the towns engaged in the spinning and weaving processes have grown with extraordinary speed. Naihati and Narayangunj each more than doubled in the fifty years ending 1921, while Bhatpara grew almost by 50 per cent in the same period. Titaghur more than trebled in the twenty years preceding 1921, while Budge Budge and Kamarhati almost doubled during the same period. Chandpur, Bogra, Dinajpur, Jalpaiguri and Serajgunj have also shown a remarkable growth, mainly owing to the jute industry.

Cotton Industry in India.—Last, but not least, has the cotton industry contributed to the rapid growth of a number of towns practically throughout the length and breadth of the country. Except for the slight set-back that it received during the latter part of the nineteenth century, the cotton industry has had a very high and important place in the industrial life of the country from the most ancient times to the present day. Although the industry was previously carried on by hand, it had attained a fairly high degree of excellence and importance when it had to face the competition of the mill industry of England. But feeble was the resistance that it could offer to the highly organised and well-directed industry of the West; and which, above all, found a sympathetic, instead of a hostile, administration in the shape of the East India Company. The most ancient and important industry was thus practically crushed, but it soon raised its head again, and has once more stood up to face the foreigner, after fortifying itself with the most modern implements.

¹ *Census of India, 1921, Bihar and Orissa, Part I, pp. 279-80.*

The New Cotton Towns.—The new industry has been growing at a fairly rapid pace, and it is no wonder that it has given rise to a number of towns which are growing very fast. Besides Bombay, Calcutta, Madras, Ahmedabad, Cawnpore and Nagpur, which have already been mentioned in the previous chapter, a number of smaller, but rapidly growing, towns owe their importance to the cotton industry. In Bombay, especially, the number of such towns is very large and their growth markedly swift. Bhūsawal and Jalgaon have both quadrupled in population since 1872, mainly owing to their importance as centres of the cotton industry in the presidency, while Bijapur, Dhulia, Rajkot and a number of other towns are also growing rapidly on account of the cotton industry. The Central Provinces, the second most important province in the country for the growth and manufacture of cotton, has also a number of rapidly growing towns. Wardha is an important industrial town, and has numerous cotton spinning and weaving factories, as also ginning and cleaning mills. It owes its present importance almost entirely to the cotton industry, and has grown five times since 1872. Yeotmal, an important town having many cotton ginning and cleaning mills, has quadrupled, while Buldana, another important cotton town, has more than doubled, in the same period. Amraoti and Akola have increased by 74 and 159 per cent, while a number of other *moffusil* towns, e.g. Khamgaon, Hinganghat, Warora, etc., have grown from ordinary villages to important industrial towns entirely on account of the cotton industry. In the United Provinces the industry is practically confined to Cawnpore, but in Bengal it has given rise to a number of important towns. Bhadrēshwar, Naihati, Kamarhati, all owe their present importance to some extent to the cotton industry, while Nadia and Budge Budge, other growing industrial towns in the presidency, have considerable cotton mills.

The table on page 28 shows the growth of some of the important jute and cotton towns.

The Housing Problem in Mill Towns.—The small mill and mining towns we have been speaking about in this chapter have, unlike the big cities, no insurmountable obstacles in the way of a proper housing system, on account of the availability of sufficient ground space. The ground rent at these places is generally very insignificant, and land can be had for the asking. The real problem is, accordingly, with regard to capital and the agency through which the houses are to be constructed. The speed with which the

NAME OF TOWNS	POPULATION IN 1872	POPULATION IN 1921	PERCENTAGE VARIATION 1872-1921
Bhusawal	6,804	25,557	276
Bandra	7,227	29,271	305
Dhulia	12,489	30,605	145
Jalgaon	6,893	23,710	244
Wardha	3,562	16,044	350
Yeotmal	4,445 ¹	17,238	288 ¹
Akola	14,606	37,864	159
Amraoti	23,410	40,694	74
Buldana	2,979 ²	5,691	91 ¹
Budge Budge	13,051 ²	25,723	97 ²
Naihati	7,246	23,286	221
Kamharhati	10,253 ²	23,018	124 ²
Bhadreshwar	7,417	22,081	198
Nadia	8,863	15,584	76
Naraingunj	11,377	30,602	169
Bhatpara	11,283	65,609	481
Titagbur	16,065 ²	52,451	226 ²

population grows renders the most gigantic schemes of housing inadequate in a short time; and there is always an ever-recurring need of houses. The absence of municipal or other restrictions with regard to building and sanitation in these small towns generally renders them peculiarly liable to insanitary and unhygienic conditions. Moreover, the gregarious instinct of the Indians induces them to make congested houses, if left to themselves; and, accordingly, we find the curious phenomena of crowded housing even in places where there is no lack of ground space. To add to all this, the habit of the Indians of using a large quantity of water for household consumption makes the problem of proper water-supply and sanitation very difficult. The municipal bodies in the small towns are generally too poor to look to these matters, so that proper drainage, good water-supply and even efficient sanitation and cleanliness cannot be provided for. A very satisfactory solution of the problem can be found in a fruit and vegetable garden, which, if laid out in the heart of the town, will not only consume, with profit to itself, all the refuse and dirty water of the town, but also add to its beauty and general appearance. Looking to the obvious and manifold advantages of such a plan in tropical towns, it

¹ Relates to population in 1891 and variation from 1891-1921.

² Relates to population in 1901 and variation from 1901-21.

³ Relates to population in 1881 and variation from 1881-1921.

is a wonder that nobody thought about it till very recently, and there is practically no example of a town with such an arrangement for dealing with its refuse and dirty water.

PART II
SOCIAL ASPECTS OF THE HOUSING
PROBLEM

CHAPTER III

IMMIGRANT POPULATION IN BIG CITIES

General Characteristics of City Life.—The social composition of the large cities and the mill and mining towns in India is characterised by the dominance of a large floating immigrant population, drawn from the surrounding districts and more distant parts of the provinces. The growing pressure of population on agriculture and the increasing fragmentation of holdings have rendered agricultural income both uncertain and insufficient in the case of a large body of small-holders, so that the small cultivator and his more humble companion, the field labourer, in spite of their deep attachment to the soil, their limited requirements, and their natural aversion to the unhomely and squalid life of the cities, have found it increasingly difficult to make the two ends meet without supplementing their meagre agricultural income during off-seasons and bad harvests. With the appearance of cheap machine-made goods, the cottage industries, which helped both the peasant farmers and the field labourers to occupy themselves during leisure hours and times of scarcity, have become unprofitable and have decayed.

The Clash of Social Customs with City Life.—Thus the force of economic circumstances, working against the villagers' social customs, habits and traditions, has brought about the disruption of the village community, the joint-family system, and other institutions characteristic of an ancient agrarian organisation. The adaptation of social customs and organisations to changed circumstances and environments is necessarily a tedious and unpleasant process, involving considerable hardship and suffering during the period of transition. Referring to the statistics of migration in India, Marten rightly observes that they illustrate the home-loving character of the Indian people, which is the result of economic and social causes, and the immobility of an agricultural population, rooted to the ground, fenced in by caste, language and social customs, and filled with an innate dread of change of any kind.¹ The average agriculturist refuses to bow before the overmastering forces of eco-

¹ Marten, *Census of India, 1921*, Vol. I, p. 83.

conomic pressure, and finds it impossible to reconcile himself to the dirt and squalor of the city. He goes to the city either to tide over difficult times or to supplement his meagre agricultural income or to pay off some cumulatively increasing debts, incurred by himself or his forefathers.

Kinds of Migration.—The extent of this temporary, periodic and semi-permanent migration from the rural areas to the centres of industry and trade is difficult to measure. Birthplace, as the census authorities also admit, is at best a rough means of measuring either the regional movements or the foreign composition of a population. The census figures, in particular, are vitiated by the fact that the place of birth and the place of enumeration are frequently both accidental, and both these have no indissoluble connection with the place of residence and even of business. The absence of any information with regard to the place of residence is still more unfortunate, so that a large number of casual movements, including visits for family, social, educational or business reasons, and the more important movements connected with fairs, festivals, etc., are not distinguishable from periodic or permanent migrations. A large volume of such migrations, however, consists of short-distance movements from one district to another. But these casual movements are insignificant as compared to the larger and more important influx of industrial labourers into the mill and mining towns and the bigger centres of industry, and largely cancel each other when migration as between one province and another is taken into consideration.

Analysis of Migration Statistics.—It should, however, be pointed out that, just as the shorter movement from district to district recorded by the census covers only a small proportion of the migration described as casual, so also these same short-distance movements include a certain proportion of the other more important classes of migration. Wherever, on account of industrial, commercial or agricultural activity, an area attracts immigrants, a certain proportion of these will be drawn from the neighbouring areas. Thus the growth of the larger industrial cities of the Bombay presidency, like Bombay, Ahmedabad, Sholapore, etc., and the increasing importance of Cawnpore, Nagpur and Jubbulpore, no less than of Calcutta and the mill and mining towns of the Bengal presidency, is due to the concentration of population from the neighbouring areas and contiguous districts. Before, however, discussing the

composition of the bigger cities, it seems to be necessary to consider that of the provinces.

The following table shows the formation of the population of the important provinces of India by birthplace :

POPULATION CLASSIFIED BY BIRTHPLACE

000 omitted

PROVINCES	NATIVE BORN			BORN IN OTHER PROVINCES			BORN OUTSIDE INDIA		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
Assam	3,429	3,271	6,700	672	545	1,217	49	24	73
Bengal	23,293	22,370	45,663	1,269	549	1,818	67	45	112
Bihar and Orissa	18,506	19,034	37,540	192	195	387	12	23	35
Bombay	13,272	12,347	25,619	604	436	1,040	32	10	42
Burma	6,148	6,314	12,462	485	86	572	100	34	134
C.P. and Berar	7,659	7,711	15,370	317	287	604	4	1	5
Delhi	177	125	302	100	82	182	3	..	3
Madras	20,988	21,596	42,584	104	93	197	8	5	13
U.P.	24,162	21,868	46,030	171	255	426	37	18	55
Punjab	13,413	11,061	24,474	293	299	592	26	9	35

Inter-provincial Migration.—The table clearly shows that Assam contains the highest percentage of foreigners. According to the census figures, no less than 16 per cent of its population is immigrant, while another considerable portion consists of the children of the permanent immigrants, who have been entering the province for the last fifty years for employment in the tea-garden industry from the distant provinces of Bihar and Orissa, the Central Provinces, the United Provinces, and Madras. The total population of the Assam tea gardens in 1921, including managers, dependents and assistants, was 922,245. Of these, no less than 583,000 were immigrants into the province. Mr. Lloyd, the Census Commissioner of Assam in 1921, estimates that 'the total number of foreigners now in the province on account of the tea industry is about a million and a third; that is to say, one-sixth of the whole population of Assam.'¹ This is only a rough estimate, and it is more likely to be under than over-estimated. The sex and age figures of the immigrants show that they are settling by families rather than singly, as

¹ Lloyd, *Census of India, 1921, Assam, Part I.*

elsewhere. Generally, however, the men come first to secure the land and build houses and the families follow, so that in Goalpara nearly 20 per cent of the population is made up of such settlers, and in Nowgong about 14 per cent. The labourers in the tea gardens have mostly to work in the open fields, and get ample land on nominal rent for building houses and for private cultivation, and therefore do not feel the divorce from the lands of their birth very much. But sometimes the treatment accorded to them by the managers has been harsh, while the conditions of work and remuneration have also been unfavourable; so that the embers of discontent have led to big conflagrations, resulting in the repatriation of large numbers of destitute settlers.

Immigration into Bengal.—The immigrant population of Bengal forms about 40 per mille of the total population. More than half a million of the immigrants come from the United Provinces and the province of Bihar and Orissa into the industrial districts of Calcutta, Hoogly, Howrah, and the 24 Parganas. The immigrant population of these areas formed about 150 per mille of the total population in 1921. In fact, there are three principal currents of immigrants into Bengal—one, and the most important, consisting of labourers from Bihar and Orissa and the eastern districts of the United Provinces into the industrial area round Calcutta; the other, consisting of poor agriculturists from Nepal and Chota Nagpur into the tea gardens of Jalpaiguri and Darjeeling; and the last, consisting of immigrants from Northern Bengal, Santal Parganas and Assam, into Birbhum and Tripura State, where there is ample waste land.

Composition of Urban Population.—The population of Calcutta and its suburbs is made up of people from many different places and some from great distances. According to the census of 1921, no less than 90 per cent of the people in Titaghur and 77 per cent in Bhadreswar were born outside Bengal. 'The figures,' observes Thompson, 'are remarkable as showing to how great an extent industrial development in Bengal, as shown by the growth of these towns, is the work of the up-country people, and not of the Bengalese at all.'¹ In fact, Bhatpara, Titaghur, Bhadreswar, Serampore, etc., are mere colonies of up-country men, and although industrial progress has been going on for several decades, the population still remains largely immigrant. 'A few workmen,'

¹ *Census of India, 1921, Bengal, Part I, p. 116.*

continues Thompson, 'have children with them who were born since they immigrated, but practically none have settled down and brought up their families to maturity to swell the number of the native-born. It is too much, therefore, to describe them as colonies of up-country men. They are no more than their temporary habitations.'

The following table gives the population per mille by birthplace in Calcutta, the four mill towns—Titaghur, Bhatpara, Bhadrashwar and Serampore—and the country towns in Bengal, in 1921 :

PLACES	NUMBER PER MILLE BORN IN		
	District in which enumerated	Other parts of Bengal	Outside the Presidency
Calcutta	471	167	362
Mill Towns	209	96	695
Country Towns	814	106	80

Calcutta proper, however, is becoming more a commercial city than an industrial town, particularly because of its peculiar position, circumscribed by the Hoogly and the sea. Calcutta has become overfull, containing more than 43,000 people per square mile, so that the number of immigrants during the last two decades has fallen for sheer want of space, while people have flocked to the mill areas in Hoogly and the 24 Parganas in increasing numbers.

Immigration into Bombay.—In Bombay presidency, likewise, immigrants make up 41 per mille of the population, over a million in round numbers. 'The striking feature of the migration statistics,' observes Marten, 'is the increasing absorption of outsiders into the large cities of Bombay, Karachi and Sholapore, which, except for the usual exchange of casual migration, practically monopolise the immigrants from outside the presidency. The *mofussil* does not attract strangers now any more than forty years ago, but the huge industrial expansion in the larger cities has resulted in the concentration into them of population from outside, of which the foreigners form a substantial and growing element.'¹

The table at the top of the following page shows the growth of outsiders in the big cities, as compared to the rest of the presidency.

¹ Marten, *Census of India*, 1921, p. 69.

IN THOUSANDS

TOTAL IMMIGRANTS	1881	1891	1901	1911	1921
Bombay Presidency	608	770	571	723	824
Bombay City, Karachi & Sholapore Districts	82	188	137	220	317
Rest of Presidency	526	512	434	503	507

Two Principal Currents.—There are two principal streams of immigrants going into the Bombay presidency—one from U.P., Rajputana, Punjab, Baluchistan and the North-West Frontier Province, and the other from Hyderabad and Madras, both of which represent mostly persons in search of work in the cities. The stream from the north goes to swell the proletariat of Bombay and Karachi, while the Hyderabad one goes to the mills of Sholapore. Ahmedabad, however, draws much of its labour force from Baroda, the Kaira and the Guzerat districts.

Immigration into Bombay City.—It is a well-known fact that the population of Bombay is largely immigrant. The population actually born in the city has steadily declined; and, since the birth-rate among the natural-born population is constant, it might well be assumed that this tendency would continue. The following table gives the percentage of persons born in Bombay to the total number of inhabitants since 1872 :

YEAR	PERCENTAGE OF HOME-BORN
1872	31.1
1881	27.8
1891	25.0
1901	23.4
1911	19.6
1921	16.0

Apart from the concentration of population into the industrial cities from every part of the presidency and from outside, migration in Bombay presents no features of special interest. The table at the top of the following page gives details about the immigrant population in the cities of the Bombay presidency.

It is significant to note the fact that 92,036 males and 38,687 females, in all 120,723 immigrants into Bombay city in 1921, were

¹ Sedgwick, *Census of India*, 1921, Vol. IX, Part II, pp. 31-45.

NAME OF CITY	PER MILLE OF TOTAL POPULATION BORN IN			
	City and District	Contiguous Districts	Other Parts of Presidency	Outside Presidency
Bombay	160	250 ¹	383	207
Karachi	395	260	73	272
Ahmedabad	603	222 ²	53	122
Sholapore	656	34	50	280 ³
Hubli	785	31	50	134
Surat	813	46	104	37

labourers employed in the textile industry alone.¹ Thus practically the whole of the cotton industry is manned by imported labour, of whom 21,291 males and 1,059 females come from outside the Bombay presidency, and about 15,000 from the United Provinces alone.

Immigration into the Mining Areas.—The province of Bihar and Orissa, as has already been pointed out, contributes largely to the flow of immigrants into Bengal and Assam, but has practically no immigration, 98·9 per cent of the people enumerated in the province having been born in the same province, and no less than 95·7 per cent in the same district in which they were enumerated. In the districts of Singbhum and Manbhum, however, a large number of people are attracted from outside on account of the extensive coal and iron mines and the Tata Works; while in Purnea, another district which draws a fair amount of outside people, the attraction is vacant spaces for settlement and employment in railway works.

The following table gives the number and percentage of immigrants into these three districts in 1921:⁴

DISTRICTS	IMMIGRANTS	
	Total Number	Per Mille of Total Population
Purnea	204,094	100·8
Manbhum	153,324	98·9
Singbhum	77,317	101·8

¹ Ratnagiri, Kolaba, Thana and Bombay suburban districts.

² Includes 128 from Baroda state.

³ Includes 249 from Hyderabad, Deccan.

⁴ Tallents, *Census of India*, 1921, Bihar and Orissa, Part I, p. 92.

The Population of Jamshedpur.—So considerable has been the immigration into Jamshedpur, the headquarters of the Tata Iron and Steel Works, that the proportion of immigrants into the city is 724 per mille of the total population, while nearly half of the inhabitants of the city have their birthplaces outside the province. The Central Provinces and Madras supply most of the unskilled labour to the town, while Bombay, the United Provinces and the Punjab supply the greater part of the skilled labour. During times of scarcity and agricultural depression labourers from the neighbouring district of Hazaribagh flock into the town. Most of the immigrant labourers go to the town only temporarily, in spite of the many amenities of life which the company offers. 'It is estimated,' observes Mr. Tallents, 'that hardly 10 per cent of the aboriginal tribes working at Jamshedpur have cut themselves off from the village and settled permanently in the town, while among the Chhatis Garhias the percentage is rather higher.'¹

Immigrants in Burma.—The total immigrant population in Burma is 707,000, the bulk of whom come from Madras (273,000), Bengal (146,000), the United Provinces (71,000), and China. The bulk of the immigrants consists of those employed in the various industries in and around Rangoon and elsewhere. As for the floating character of the immigrant population, some idea can be had from the observations of Mr. Grantham, the Census Commissioner of Burma for 1921, that out of about 62,500 immigrant male labourers in industrial employment who were asked whether they intended to remain in Burma, all but 2,600, or about 4 per cent, replied that they proposed to return to their homes. The proportion of the native-born per mille of the population of Rangoon is only 340; and out of the immigrants 120 per mille come from other parts of the provinces, 480 per mille from other provinces, and 6 per mille from outside India.

In the Central Provinces.—In the Central Provinces the immigrant population is hardly 3·8 per cent of the total population. The trade and industries of Nagpur and Jubbulpore have attraction for the population of the northern tracts, while the manganese and the coal mines offer considerable attraction to labour, especially during the off-seasons. The cotton-growing industry of Berar and of the adjacent districts of the Mahratta plain always attracts a seasonal influx from Hyderabad and the Bombay presidency.

¹ Tallents, *Census of India*, 1921, Bihar and Orissa, Part I, p. 91.

In Madras.—In Madras there are practically no immigrants from outside the province, while there is little migration even between the natural divisions. There is, however, some foreign labour on the tea estates in the Nilgiris and in Madras city. The proportion of immigrants to total population even in these places is, however, hardly over 300 per mille.

In the Punjab.—The Punjab presents no immigrant population worth noticing, except that a large proportion of the army in India is stationed in the province.

In the United Provinces.—The United Provinces, in conclusion, have not much immigration either, while the balance of migration is about a million against it. 'As would be expected,' observes Mr. Edye, 'the city with the largest number of immigrants is Cawnpore.' Its industries attract a certain amount of labour from outside, and there is the usual contingent of Bengalee clerical and professional men, Marwari traders and so forth, although in the latter respects Allahabad and Lucknow are more cosmopolitan. The flow of internal migration is mostly towards Cawnpore, which is the only industrial town of note in the province and in Northern India as a whole.

The following table gives the proportion of immigrants from adjacent districts and outside the province into the important towns per mille of the total population :¹

TOWNS	PER MILLE OF PERSONS BORN IN		
	District of Enumeration	Adjacent Districts	Elsewhere
Cawnpore	575 ²	242	183
Lucknow	771 ³	135	94
Allahabad	733	71	196
Hathras	586	111	303
Jhansi	760	90	141

Floating Immigrant Population in Cities.—To sum up, it would appear that almost all the important industrial and commercial cities, as also the growing mill and mining towns, have a large class of floating immigrant population, coming both from the contiguous

¹ Edye, *Census of India*, 1921, United Provinces, p. 97.

² 52 of these are immigrants from the rural parts of the district.

³ 61 of these are immigrants from the rural parts of the district.

districts and more distant parts for temporary employment in the industries. Such immigrants generally live single and go back to their respective homes at regular intervals to look after their family and recoup their health. Thus, in the first instance, the cities are periodically reinforced with a fresh contingent of adult male labour, and secondly the ratio of females to males is kept permanently and dangerously low. This in turn gives rise to numerous problems of health and morality, which will be discussed at length in the next chapter.

Its Effects on Public Health, Housing and Social Conditions.—Not only does this floating character of the population, particularly labour, affect the development of industry, but it also renders the work of social reform, town development and general improvement immensely more difficult and complicated. The work of the local authorities and non-official welfare organisations becomes very difficult, while the problems facing the town-planner and the sanitarian become almost insurmountable. Good housing, provision of cheap recreation, diffusion of general education, works for the social and economic advancement of the people, and questions of public health and sanitation, all receive a set-back; and fresh complications and difficulties arise, while the low standard which such immigrants usually set up regarding the necessities of existence depresses and demoralises the whole labour force. In the sphere of housing particularly, this floating population of single men has created serious difficulties. Their limited requirements can be adequately and cheaply met by the tenement or *chawl* type of buildings, which are quite suitable to their special needs. In fact, the hostel type of *chawls* and tenement blocks, now so common in Bombay, Ahmedabad, Calcutta, the jute mill towns, Cawnpore, etc., are a legacy of that mode of life. These *chawls*, while they are fairly tolerable as temporary habitations for single men, are utterly inadequate and unfit to serve as houses for family men; yet, on account of the lowered standard of the people, competition, and the iron law of wages, the man with a family has to make the best of them, while others who might be thinking of bringing their families with them are dissuaded from doing so. Thus tenement houses and bad housing conditions in general might be said to be both a cause and a result of a floating immigrant population. It follows from the above that the greater the floating immigrant population in a city the worse are its housing conditions, and this is fully corroborated by the figures. Barring exceptional circum-

stances, the extent of the floating immigrant population in a city may be measured by the proportion of male immigrants (without family) from districts of provinces other than those in which the city lies.

The following table gives the distribution of the population by birthplace in the principal industrial cities of India in 1921:¹

CITIES	ACTUAL NUMBER OF PERSONS BORN IN						
	Place of enumeration	Contiguous districts of the same province		Other districts of the province		Outside the province	
	Persons	Females	Males	Females	Males	Females	Males
Calcutta ..	304,776	42,076	66,884	48,529	117,289	62,497	265,790
Bombay ..	187,863	81,170	154,597	191,107	336,376	48,690	175,091
Madras ..	350,411	..	..	67,982	89,562	7,891	12,055
Hyderabad ..	292,885	16,646	18,276	16,122	21,118	14,377	24,763
Rangoon ..	110,315	19,286	25,485	..	..	29,164	155,712
Delhi ..	167,362	..	..	..	..	51,241	85,817
Lahore ..	157,786	7,143	15,772	16,494	43,909	9,610	310,672
Ahmedabad ..	165,320	17,984	26,675	..	..	24,369	39,659
Sholapore ..	72,592	1,344	2,624	3,375	3,704	14,646	15,646
Karachi ..	85,633	18,224	24,412	10,150	21,194	15,684	41,582
Cawnpore ..	124,492	7,769	11,968	23,412	37,923	2,904	7,968
Howrah ..	86,129	5,989	8,880	5,677	8,750	10,220	60,648
Nagpur ..	107,628	3,960	4,704	6,195	7,828	5,495	9,583
Jubbulpore ..	68,949	3,817	4,635	..	..	4,798	20,584

Contrast between English and Indian Towns.—The problem of a floating immigrant population is peculiar to Indian cities and has had no counterpart in Western towns, even during the Industrial Revolution. Although instances are not wanting of young men from rural areas migrating to the towns in search of work, the time when industry was maintained chiefly by recruits from the country is long past. When industry was first localised and concentrated in towns in England, there was, no doubt, a large rural exodus to the towns for employment, but such immigration was not of the casual and floating type as we meet with in Indian towns to-day. This was due largely to the fact that the people who manned the industries in England cut themselves off entirely from agriculture, in which they were engaged merely as farm labourers. Moreover, the repeal of the corn laws and the agricultural depression in the nineteenth century permanently disabled a large number of agricul-

¹ *Census of India, 1921, Vol. IX, Table XI.*

turists, who shifted to the towns, where they obtained higher money wages and had better chances of employment. The proportion of immigrants per mille of total population in London, in spite of its cosmopolitan population, is only 318 and is steadily decreasing. The largest industrial towns in England register also the largest proportion of native-born inhabitants; while those which register the lowest proportion of native-born are not industrial towns. Thus industry in England by no means spells the breaking up of the working-man's family or his temporary removal from his place of birth and domicile, as in India.

Preventive and Ameliorative Measures.—There are two ways of meeting the problem arising from this unwholesome tendency, which, for ready reference, might be termed as *Preventive* and *Ameliorative*. The latter aims at the improvement of the conditions of life and environment in the cities in various ways, detailed in the fourth and last part of this work, and by the spread of education, the promotion of unity and organisation among the workers, and generally by the adaptation of work, recreation and home-life to the social, religious, moral and economic traditions of the people. The former, or the preventive method, on the other hand, consists in removing the causes of the casual, periodic and semi-permanent rural exodus, which will also remove the root cause of the malady. This might take the form of the consolidation and rearrangement of agricultural holdings which have become incredibly small and hence uneconomical on account of the laws of succession prevalent in the country and on account of the increasing agricultural population. In this way the pressure on land can be decreased and the agriculturist will no longer be forced to find out new avenues of work for supplementing his income; while the dispossessed tenants might cease to have any lingering interest in land and may make towns their homes and strive to adapt themselves to the new circumstances and improve the conditions of work and living. Secondly, it might take the form of the development of profitable cottage and home industries, which might give employment to women and other dependents no less than to the agriculturists themselves during the off-seasons and in times of scarcity. The use of cheap oil engines for cottage industries might go a long way towards checking the periodic migrations from the villages and the improvement of agriculture, as it has done in Denmark, Switzerland and Norway, and even in parts of Canada, France and Germany, to a smaller extent.

In Denmark and Switzerland particularly, home industries have so far been perfected that even watches and musical instruments, to say nothing of cloth, furniture, baskets, etc., are manufactured in the homes of village artisans. The expansion of the co-operative movement and the establishment of a network of industrial banks would also contribute towards the organisation of rural life and production, without which urban deterioration cannot be effectively remedied.

CHAPTER IV

SEGREGATION OF SEXES IN INDUSTRIAL CENTRES

The Prejudice against Daughters, and Its Effects.—The phenomenal growth of industrial towns in India has been accompanied by some peculiar social consequences. Although the proportion of females to males in India as a whole is low and on the decrease, being only 945 to 1,000 in 1921, in the industrial and commercial towns it has really reached a danger point. In Europe, as a rule, the ratio is in favour of the females, because the boys are not only constitutionally more delicate than the girls, but the risks to which they are exposed in their daily avocations, and the hard work which they have to perform, combine to make their mean duration of life less than that of women. As Sir Edward Gait has pointed out in his report on the Census of India, 1911, the conditions in India are altogether different. 'Sons are earnestly longed for, while daughters are not wanted. This feeling exists everywhere, but it varies greatly in intensity. . . . Sometimes the prejudice against daughters is so strong that abortion is resorted to when the midwife predicts the birth of a girl. Formerly, female infants were frequently killed as soon as they were born, and even now they are very commonly neglected to a greater or less extent. The advantage which nature gives to girls is thus neutralised by the treatment accorded to them by their parents. To make matters worse, they are given in marriage at a very early age, and cohabitation begins long before they are physically fit for it. To the evils of early child-bearing must be added unskilful midwifery, and the combined result is an excessive mortality among young mothers. In India almost every woman has to face these dangers. Lastly, amongst the lower classes, who form the bulk of the population, the women have often to work as hard as, and sometimes harder than, men; and they are thus less favourably situated in respect of their occupations than their sisters in Europe.'¹ All these factors are generally intensified in towns.

Woman, a Helpmate in the Village, but a Burden in the City.—In the villages and the countryside the woman is a

¹ Sir Edward Gait, *Census of India*, 1911, Vol. I, para. 275.

helpmate to the peasant farmer and the field labourer. Cooking food and doing all other work of the household is not her only occupation. She renders invaluable services during the sowing season and again at the harvest time, and not infrequently takes the grain to the market for sale and makes the necessary purchases. She feeds the cow and the buffalo, milks them and prepares *mattha* and ghee—the former for home consumption and the latter for sale. Besides, she spins yarn and adds to the family income in other ways during leisure hours. Thus she helps her husband in his daily toil, gets him healthy and delicious food, and proves in every way a useful and valuable member of the family. She keeps a healthy constitution, because she works mostly in the open air, and gives birth to strong children, who grow healthful and happy because they get plenty of space and open air to play about. All this is, however, reversed in the city, where social conditions forbid much out-of-door life to the females. The dearth of space and the consequent high rents compel the labourers and other poor folk to live in ill-ventilated and insanitary single-room tenements, which afford neither sufficient light and fresh air nor adequate accommodation to the inmates. Of privacy there is little or none. Add to all this, the woman seldom finds adequate and suitable work for herself in the city. Long hours in the factory or the workshop in unnatural surroundings are peculiarly harmful to her constitution. The result is that she feels exhausted and tired after coming from the works. She can neither enliven the spirits of her husband after the day's labour, nor prepare good food for him, nor take due care of the children. No wonder, therefore, that she has no preference for her home in the city *basti*, nor is her husband anxious to keep her there. This explains in part the great disparity in the proportions of the sexes in most of our industrial centres. In some of the cities females hardly number half as many as males.

The table at the head of the next page shows the proportions of the sexes in urban parts and the total population in the important provinces of India in 1921.

Town-life not Favourable to Family-life.—One would expect that the advantages of municipal conservancy, a good water-supply, and the other amenities which town-life affords, would attract families to the towns. The figures, however, tell a different tale. The number of men who are able to find employment in

PROVINCES	NUMBER OF FEMALES PER 1,000 MALES	
	In Total Population	In Urban Population
Bihar and Orissa	1,029	878
Madras Presidency	1,028	1,005
C.P. and Berar	1,002	909
Mysore	962	914
Burma	932	662
Bengal Presidency	922	612
Assam	926	753
Bombay Presidency	912	799
United Provinces	909	825
Punjab and Delhi	826	714

towns in the professions, in administrative services and, above all, in industrial concerns, has increased. Thus the male population in the average town is being swelled, but an increasing proportion of the people leave their womenfolk behind in the country. Town-life is not the normal life of any appreciable section of the Indian populace. The growing disparity in the proportions of the sexes in the urban parts, therefore, shows that the new social and economic forces are compelling a growing proportion of the people to lead unnatural and cheerless lives. This is a very serious problem, and deserves much more careful attention than it has received up till now. A glance at the figures showing the proportion of females to 1,000 males in the principal industrial cities in India will reveal the seriousness of the problem.

The following table gives the proportion of females to 1,000 males, in the principal industrial towns in India, in 1921 :

CITIES	RATIO OF FEMALES TO 1,000 MALES	CITIES	RATIO OF FEMALES TO 1,000 MALES
Madras	908	Lahore	571
Nagpur	863	Bombay	524
Ahmedabad	763	Howrah	520
Jubbulpore	761	Calcutta	470
Cawnpore	667	Rangoon	444
Karachi	629	Titaghur	436
Delhi	572	Chandpur	421

Disparity in the Sex Ratio in Calcutta.—‘But it is in Calcutta and the other industrial towns of the eastern districts,’

rightly observes Thompson, 'that the growing difference in the sex ratios is becoming a real danger signal. In Calcutta males outnumber females by distinctly over two to one, and the corresponding ratio in the average commercial or industrial town is still more remarkable. In 1872 the proportion of the sexes in the latter was much as it is in the average country town to-day.'¹

The following table gives the sex ratios in the different classes of towns in the Bengal Presidency in 1921:

	NUMBER OF FEMALES PER 1,000 MALES		
	1872	1901	1921
The average country town	947	869	816
The average commercial or industrial town ..	798	605	537
Calcutta City	552	507	470
Bengal	992	960	932

Greater Disparity at the Age of Puberty.—This growing disparity in the sex ratios becomes still more prominent when we consider that, while in 1921, out of 10,000 males, 5,758 in Calcutta and 5,925 in the mill towns belonged to the age of puberty, 15 to 40, only 4,671 and 4,893 out of 10,000 females belonged respectively to the same age-group. This means that the ratio of adult males to adult females is about 8 to 3 in Calcutta city, and 11 to 4 in the average industrial and commercial town. This disparity in the proportions of the sexes is really alarming and calls for an immediate and serious attention. The medical records of the mill doctors in the jute mill towns, wherever we looked into them, showed that the workers were commonly suffering from syphilis and other venereal diseases. This is evidently due to their unnatural existence in these places. Conditions in the other provinces bring out more or less similar results.

Disparity in Country Towns.—Another fact which at first seems surprising is the continuous and speedy decrease in the proportions of the sexes in the average country town in Bengal. As will be apparent from the preceding table, this decrease has been going on at more than double the rate in the province as a whole,

¹ Thompson, *Census of India*, 1921, Bengal, Part I.

and just below thrice the rate in the rural tracts. The male population of the average country town has increased, but an increasing proportion of the middle-class people, especially those engaged in the lower grades of administrative services and other low-paid clerks and teachers, leave their womenfolk behind in the country; and their population is accordingly more or less stationary. The middle-class man generally owns a house somewhere in the country, where his family can remain much more cheaply and comfortably than in the towns. The flats, where rooms are available for this class of people in the city, do not suit the purdah ladies, and accordingly the men prefer to live single. Such unnatural existence is not confined to Bengal alone, but is true of the Bombay Presidency and is fast becoming a general feature in cities in different parts of India.

Sex Ratios in Bombay by Sections.—In his report on the census for the cities of Bombay for 1921, Mr. Sedgwick has classified the percentages of males to females by sections in the city of Bombay. The results of his enquiry show that the disparity of the sexes in some of the quarters, especially those occupied by the poorer industrial workers, is much more marked than in quarters populated by the more well-to-do and better class of people. The exact figures for some of the more important sections are given below:

SECTIONS	PERCENTAGE OF FEMALES TO MALES	SECTIONS	PERCENTAGE OF FEMALES TO MALES
Upper Colaba ..	33	Bhuleswar ..	46
Lower Colaba ..	46	Girgaum ..	61
Fort South ..	19	Sewri ..	67
Esplanade ..	34	Tardeo ..	63
Chakla ..	39	Chaupati ..	61
Mandvi ..	50	Khetwadi ..	62
Market ..	30	Bombay City ..	52.4

Sex Ratios at Various Age-groups.—Comment is needless. It might further be noted that, as in Calcutta, the excess of the adult male over the female population of the age-group 20 to 40 is characteristic of the social composition of Bombay city. The following table indicates, in a summary form, the percentages of females to males at each age-period in Bombay city in 1911 and 1921:

AGE-PERIODS	PERCENTAGES OF FEMALES TO MALES	
	1911	1921
0 to 15	83	84
15 to 20	55	58
20 to 40	42.3	42
40 to 45	45	42
45 and over	61	60.3
Average of all ages	53	52.5

Effects of the Disparity of Sexes.—Thus the disparity in the proportions of the sexes at the age of puberty, 20 to 45, is not only the greatest, but is increasing steadily; and the proportion of females to 1,000 males at these ages is only 420. Thompson, in his report on the Census of Bengal for 1921, has rightly pointed out that 'The great predominance of males involves a great increase in sexual irregularity; while this fact again tends to discourage men from bringing their wives to the towns with them. The great change in this respect which has come over the average industrial or commercial town is a matter of serious import, not only when the welfare of the labouring classes is concerned, but from the point of view of the employer. The male labourers, being nearly all married, each with a wife somewhere, this disparity means that most of the workers are leading an unnatural existence, missing the comforts of home life, and exposed to the greatest temptation towards intemperance; and ambitious, so far as they have any ambition, only to earn enough to take them home. It is not surprising that their employers find they have little heart in the work and that they are notoriously unsteady.'¹

Social and Moral Effects.—Thus immorality and vice are rampant in most of our industrial towns. The overworked and ill-paid labourer, living hundreds of miles away from his family, finds the liquor-shop the only place where he can forget the toils and worry of the day and give relaxation to his exhausted body. The *bazaar* girl or the prostitute is his sole recreation and luxury. Under the influence of raw country liquor, he plays the hooligan and sets about doing mischief. The alarming growth of prostitution and crime in the two presidential cities, Bombay and Calcutta, has caused grave anxiety to the municipal and local governments.

¹ Thompson, *Census of India, 1921, Bengal, Part I.*

Prostitution in Bombay and Calcutta.—In Bombay, according to the census of 1921, 2,995 females declared their occupation as 'prostitution' to the census authorities. About a thousand more have been classified as procurers or dependents. This, however, excludes the thousands who conceal their profession and are not bold enough to declare themselves prostitutes. In Calcutta and the suburbs, the total number of prostitutes is no less than 16,000 and 8,877 respectively, with 1,330 dependents in the city alone. Among women aged 20 to 40, no less than one woman in every twelve is a prostitute! To add to this, according to the Calcutta Vigilance Association, no less than 2,000 girls, between the ages of 9 and 13, are living in houses of ill fame; and it might be assumed that they are being brought up to a life of shame. These girls are not the children of the women with whom they live, but have either been purchased or deluded by them. At a meeting recently held at Calcutta, on behalf of the aforesaid association, to devise means to save these poor victims, Lord Lytton, the Governor of Bengal, has promised, on behalf of his government, to found a home for 40 such girls. Here, it is believed, those rescued girls will be given an opportunity to lead a life of purity and decency.

Relation of Housing to Social Evils.—One of the chief causes of prostitution, crime and other immoralities in our cities is, as we have seen, the serious disparity in the proportions of the sexes in these places. As has already been hinted, the main cause of the shortage of women in these places is the unsatisfactory state of the houses. What privacy can a house consisting of one single room of the average size 9 ft. by 7 ft. by 6 ft., which is common in the jute mill or Cawnpore *bastis*, or one of the size 8½ ft. by 9½ ft. by 8 ft., which is generally met with in the coolie lines built by the employers, afford, when it is occupied by a man, his wife, two to four children, and one or more lodgers? The slums of Bombay, Calcutta and the industrial towns of the Madras Presidency bring out a more deplorable state of affairs. Naturally enough, the workman living in the city longs for the village home and the freedom of the country. But the high money wages, the chances of employment, the various amusements and even the opportunities for dissipation in the cities are too alluring to be easily given up. Quite a large number of the work-people come to the city merely to tide over difficult times, and go back to the country as soon as their immediate wants are satisfied. The notoriously migratory nature of the Indian

labourer can be thus explained by the social and psychological conditions prevailing in the cities. Such migrations are, however, a permanent feature of the labour problem in India, and affect almost exclusively the male population.

Other Causes of Sex Disparity in Cities.—It is, of course, true that, while a large number of people go to the towns and cities for purposes of trade and commerce, others go for the sake of health, recreation and sight-seeing. Thus there exists almost permanently a large body of male population in the cities which does not exactly belong to the city, but which has to live there for various reasons, and helps to swell the male population of the city and magnify the disparity in the sex ratios. The Army and the University, as well as the professions and the services, also draw a fairly large number of the male population from the surrounding country to the city.

Effects of Commerce and Industry.—But more than any of these, industry and commerce contribute to the disparity in the proportions of the sexes in the important industrial cities of the country. The factories give but little scope for the female workers. In spite of the fact that female labour is cheap, the employers do not like it, because it is more troublesome, unreliable and migratory than male labour. Some of the mills altogether boycott female labour on this account.

The following table gives the number of female workers per 100 males in the principal industrial cities of India :

Calcutta	..	..	..	..	21
Bombay	..	..	..	..	11
Madras	..	..	..	..	17
Ahmedabad	..	..	..	..	20
Rangoon	..	..	..	..	17
Cawnpore	..	..	..	..	14
Howrah	..	..	..	..	13
Karachi	..	..	..	..	7
Lahore	..	..	..	..	3

Probable Remedies.—The question here arises as to how we can meet this growing menace to the moral and material progress of the country. The present conditions are not only coming in the way of our social and moral development, but are seriously jeopardising the chances of the industrial and commercial progress of the country. Our principal industrial cities are finding it increasingly difficult to obtain an adequate supply of labour for their growing establishments, while they are not certain of even such labour as they have. After all, we cannot expect labourers who have to live

under squalid conditions to forget their village homes and the social amenities of rural life merely for a little higher pay. In this matter, as in many others, we have to take lessons from the foreign countries which have dealt with the problem in various ways. Town-planning, the improvement of transport facilities, technical improvements in the methods of building, the substitution of small houses for tenement blocks, the promotion of garden cities and industrial suburbs, and even the public or communal ownership of land, have been proposed and carried out in many lands for the improvement of the conditions of living in cities, and there is no reason why we should not profit by their example.

We shall, however, postpone a detailed examination of the various remedies for the present. In some countries the state has tried to effect a direct improvement in sex ratios in the cities by forcing the employers to keep a proportionate amount of female to male labour; in others supplementary industries have been encouraged where female labour can find easy employment. But the interference of the state in these affairs raises many controversial issues, which cannot be discussed here.

CHAPTER V

PRESSURE OF POPULATION ON HOUSE ACCOMMODATION

Census of Houses.—As has already been pointed out, the peculiar conditions of Indian labour, coupled with various other social and economic factors, characteristic of Indian cities, have made the problem of housing particularly difficult and complex. India as a whole is a densely populated country, but the presence of extensive open fields and the absence of high buildings considerably modify the effects of congestion in the villages and the rural tracts. In cities, on the other hand, not only have we few open spaces and meadows, but the piling of one storey over another greatly enhances the density and the evils arising therefrom. The practice of classifying buildings and of giving statistics of the accommodation contained in them, as evidenced by the distribution of persons per room and the like, is very recent. Even now detailed statistics are available only for a few cities; while most of these statistics themselves suffer from serious defects of omission and commission. Again, the definition of a 'house' is not yet settled, and the provincial and charge superintendents freely use their discretion and imagination in classifying buildings by uses and in distinguishing one house from another. Nevertheless, they do convey a rough idea of the state of overcrowding in the principal cities, and afford tolerably accurate data for broad comparisons. Little or no information is, however, available on the subject of rural housing. Statistics of the number of houses per mile, and the number of inhabitants per house, give, at best, an extremely rough and general idea of the state of affairs.

Two Definitions.—Broadly speaking, there are two definitions of a house in vogue for census purposes: the *structural*, where the house is defined as the residence of one or more families, having a separate, independent entrance from the common way; and the *commensal*, that is, the house of a joint family, with its resident dependents and servants. Within these definitions there is ample scope for local census officers to use their discretion. Marten himself admits that neither the regional nor the periodical figures are strictly comparable, because there are two definitions of house in use for census purposes, one based on the structural and the other on the

social aspect of the house; and it is left to the census superintendents of each province to determine, in the light of local conditions, which definition should be used.¹ Although the commensal definition has generally superseded the structural, on account of its simplicity and ease of application, the latter is still prevalent in Madras, the Central Provinces and in towns for all buildings in the nature of *chawls*, barracks or large bungalows; and the census 'house' is, therefore, everywhere somewhat of a hybrid between a house and a household. Figures about the number of houses per square mile are further vitiated by the fact that no allowance is made for the presence of large cultivable and waste open spaces upon which no house is made. The statistics of density of population per square mile or per acre suffer from the same defect. The figures, accordingly, cannot stand comparison between province and province. They are, however, given for what they are worth, because of the absence of any other more reliable data.

The following table gives the number of persons per house, and the number of houses and density of population per square mile, by provinces:

PROVINCES	MEAN DENSITY PER SQ. MILE	AVER. NO. OF HOUSES PER SQ. MILE	AVER. NO. OF PERSONS PER HOUSE
Assam	130	27.4	4.7
Bengal	578	113.6	5.1
Bihar and Orissa	340	67.0	5.1
Bombay	143	29.3	4.9
Burma	57	11.7	4.8
C.P. and Berar	122	24.3	5.0
Delhi	823	193.4	4.3
Madras	297	58.5	5.1
Punjab	183	40.4	4.5
United Provinces	414	90.8	4.6

Analysis of Density Figures.—According to the figures given above, Bengal, Bihar and Orissa, and Madras present the greatest amount of overcrowding on room-space, while the Central Provinces and Berar and Bombay closely follow them. The Punjab, the United Provinces, Assam and Burma are comparatively free from congestion. The extremely small number of persons per house in Delhi is hardly trustworthy, and shows the liberality of the local census superintendent in enumerating the number of houses, particularly because the

¹ Marten, *Census of India, 1921*, Vol. I, Part I, p. 46.

province is composed mainly of the city of Delhi, and may, therefore, be expected to show greater congestion and overcrowding of people in rooms than the other provinces.

Rural Housing.—In the country people generally live in close-built *bastis*, having clusters of mud huts, thatched with straw, or having mud-roofs supported on irregular pieces of bamboo or thick branches of ordinary trees. The Indian habit of living in flocks is due, on the one hand, to their gregarious nature, and, on the other, to the long periods of insecurity to which they have been subjected. Thus the average Indian cultivator, unlike his European or American contemporary, who lives in a cottage near his land, lives in close-built houses and owns the land in common outside the *basti*. High buildings are rare, while the second floor is practically unknown. Although the rooms are generally dingy and insufficiently ventilated, the deficiency is more than made up by big open courtyards or compounds, where the womenfolk can enjoy open air and sunshine and the children play about at ease. All this is, however, reversed in the cities. The limitations of space and the extent of the demand for land raise its price to abnormal limits and place a premium on close building; while the conditions of trade, commerce and industry necessitate the congregation of a large number of people within close limits. Accordingly, both the density of population and the number of houses per acre is greatly in excess of the normal.

The following table gives the number of persons and houses per acre in some of the important cities in India :

CITIES				HOUSES PER ACRE	PERSONS PER ACRE	AVERAGE PERSONS PER INHABITED HOUSE
Bombay City	..	..	..	3-00	78-05	34-50
Ahmedabad	..	..	..	19-00	50-00	6-24
Karnchi	..	..	..	4-72	31-73	6-39
Poona	..	..	..	1-99	8-44	4-24
Surat	..	..	..	15-00	58-00	3-87
Sholapore	..	..	..	3-70	27-30	10-30
Cawnpore	..	..	..	3-47	35-30	10-13
Calcutta	..	..	..	..	69-00	..
Howrah	..	..	..	..	90-00	..

Housing in Bombay.—The comparatively small number of buildings per acre in Bombay, in spite of the greatest density of population, is due to the fact that the tenement block, or the flat,

which is the common type of building in Bombay, although it contains several houses and sometimes gives shelter to forty and more people, is classified as one building only for census purposes. 'The flat is now such an important institution,' observe Sedgwick and Sandilands, 'that at the next census it may be well to make the distinction from the outset. That we have not the figures for true bungalows and blocks of flats since 1901 is rather a pity, since the gradual disappearance of the former and its replacement by the latter has been a conspicuous feature of Bombay.'¹ Moreover, in spite of the existence of a Municipal Act in Bombay since 1905, limiting the height of all new buildings to seventy feet and the height of buildings abutting on streets less than forty feet wide to forty feet, there were no less than 12,029 buildings in Bombay in 1921 containing two and more upper floors, out of a total number of 52,774 buildings in the city. The density again varies greatly in wards and sections. Thus in Chakla and Bhuleshwar 489 and 471 persons are living per acre; in 2nd Nagpada, another big labour quarter, 699 persons crowd in each acre; while in Kumbharwada and Kamathipur 736 and 714 persons respectively are crammed together in each acre. In contrast with these, Upper Colaba has only 23.04 persons per acre, and Fort South 31.2. The newly-developed labour quarters in Sewri, Sion, Mahim and Worli also give very low figures of density—49.6, 15.7, 31.6 and 52.69 respectively—but they are being steadily crowded up. Similarly, Ahmedabad, Khadia, Dariapur, Kalupur and Shahpur show a density of 213, 240, 192 and 130 respectively, whereas in the Cantonments there exist only two persons to the acre. In Karachi also, Old Town and Napier accommodate 295 and 275 persons respectively, in each acre. The pressure of population on space is, however, best measured by the number of persons per room.

The table on the next page gives the percentage distribution of persons by rooms in some Indian cities, and in wards mainly occupied by the poorer classes.

Overcrowding in Some Indian Towns.—The table clearly shows the pressure of population on house accommodation, particularly in quarters occupied mainly or largely by the poorer people and the mill-hands. In Bombay almost a quarter of the total population live at the rate of 6 to 9 persons per room, while one-

¹ *Census of India, 1921, Bombay Cities, Housing Statistics*, p. v.

SECTIONS	PERCENTAGE TO TOTAL POPULATION OF PERSONS LIVING IN ROOMS EACH OCCUPIED BY		
	5 Persons and under	6 to 9 Persons	10 Persons and over
BOMBAY CITY	64	22	14
Esplanade	61	19	20
Kamathipura	54	27	19
Byculla	62	26	12
Tadwadi	55	27	18
Mazagaon	56	27	17
Parel	65	25	10
Sewri	52	26	22
Sion	52	30	18
Mahim	53	29	18
Worli	55	26	19
AHMEDABAD CITY ..	84.7	13.2	2.7
Kalupur	78.45	16.6	4.7
Shahpur	79.1	18.5	2.7
Jamalpur	84.6	13.4	2.0
Paras :			
Daryapur-Kazipur ..	70.9	25.1	4.0
Shahibagh	72.2	19.8	8.0
Railwayapura	63.0	28.3	8.7
Gomtipura	77.4	20.8	1.2
Rajpur-Hirpur	67.5	25.9	6.6
Shahrkotda	73.8	23.1	3.1
KARACHI CITY	52.5	32.3	15.2
Old Town	30.9	36.9	33.0
Napier	45.0	33.7	21.3
Market	40.2	38.2	21.6
Sarai	46.3	34.8	18.9
Rambagh	45.2	29.7	25.1
Soldier Bazaar	50.7	36.4	12.9
Keamari	49.0	39.7	11.3
Lyari	54.7	32.5	12.8
Sadar Bazaar	45.3	35.2	19.5
Scattered Hamlets ..	42.4	27.7	29.9

seventh live at the rate of 10 persons and over per room ; whereas in some of the sections, for example, Kamathipura, Sion, Sewri, Mahim, Worli, etc., which are occupied mainly by the working classes, half of the people live at the rate of 6 persons and over per room. The table also shows that overcrowding in Karachi is worse than in Bombay, and much worse than in Ahmedabad. In Karachi one-third of the total population live at the rate of 6 to 9 persons and over, one-seventh at the rate of 10 persons and over, per room ; whereas in Ahmedabad about one-sixth of the total population live at the rate of 6 persons and over per room. It appears also that

the pressure is increasing steadily. Thus in Bombay, in 1911, the percentage of population living in each of the three classes was 89, 20 and 12 respectively, as compared with 64, 22 and 14 in 1921. Some of the wards in Ahmedabad and Karachi, as is clear from the above table, show considerably higher pressure on room-space than the others. In Old Town, Karachi, over two-thirds of the total population live at the rate of 6 persons and over per room, of whom about half live at the rate of 10 persons per room, and about 4 per cent at the rate of 20 persons and over per room. If we compare these conditions with those prevalent in London, one of the most overcrowded cities in the whole world, we find that only 2·3 per cent of the total population were enumerated in tenements having an average of 4 persons and over per room, while 41 per cent were enumerated in tenements having, on an average, from 1 to 2 persons per room. It is also noteworthy that no less than 63 per cent of the population of England live in tenements of 10 and more rooms each.

The following table gives a good comparative idea of the state of overcrowding in London and some important Indian cities :

	CLASS OF TENEMENTS BY NUMBER OF ROOMS					
	1	2	3	4	5	6 and over
Percentage of each Class of Tenements to Total :						
London (1911)	13	19	21	16	9	21
Bombay (1921)	70	14	7	4	3	2
Karachi (1921)	69	22	4	2	1	4
Ahmedabad (1921)	65	22	9	7	3	
Percentage of Occupants of Each Class of Tenements to Total Occupants :						
London (1911)	6	15	20	17	11	25
Bombay (1921)	66	14	8	5	4	3
Karachi (1921)	58	23	7	4	2	6
Ahmedabad (1921)	52	21	9	8	3	7
Cawnpore (1921)	61·3	21·3	10·3	3·4	3·7 ¹	..
Average Number of Persons per Room in Each Class of Tenements :						
London (1911)	1·92	1·71	1·37	1·19	1·03 ¹	..
Bombay (1921)	4·03	2·11	1·60	1·30	1·06 ¹	..
Karachi (1921)	3·46	3·20	2·24	1·75	1·81 ¹	..
Ahmedabad (1921)	3·39	1·74	1·31	1·07	0·92 ¹	..

¹ Refers to five rooms and over.

How Overcrowding is Measured.—The pressure of population on house and room space shown above is very remarkable. That conditions in Bombay and other towns in India are much worse than those in London is apparent. It might be pointed out, in this connection, that the existence of a very large number of one-room tenements, or a high percentage of population living in them, is not always synonymous with overcrowding. More than half of the population of Glasgow, according to the report of Dr. Chalmers, health officer of the city for 1921, live in one- or two-room tenements, but the condition of overcrowding in Glasgow is not at all as serious as that in Bombay, Cawnpore or Ahmedabad. A large number of one-room tenements generally means poverty, while a high figure for persons per room means overcrowding. The two might exist together as in the Indian towns, but, as a more detailed investigation into the different parts of the same town will show (*vide* Appendix II), overcrowding may exist even in better-class tenements.

Housing Standard in England.—The extent of poverty and overcrowding, prevalent in industrial towns generally, and the poorer quarters particularly, can hardly be better illustrated. In England the Wheatley Act of 1924 now provides for no more than 8 houses per acre in the agricultural parishes, and 12 per acre in the towns; while the three bedroom cottage is being increasingly advocated and considered essential for a normal family. Only for newly-married couples, or old men whose children have left home, is the humble two bedroom cottage tolerated. The minimum area of the bedrooms within walls cannot be less than 150, 100 and 65 square feet respectively, according to the new health requirements; and all these in addition to the bathroom, the coal store, kitchen, scullery, larder and parlour. The Wheatley Act definitely lays down that no new house should be without a bathroom, except in special cases approved by the minister, and that they should have proper arrangements for a sufficient supply of hot water.

The Indian Standard.—What a great contrast to these admirable attempts do our Indian towns present! To say nothing of the mill-hand, who can boast of a store or a kitchen only in very exceptional cases, even the middle classes cannot dream of all the housing conveniences which are being made available in English and American towns to the humblest citizen at public expense or subsidy. The area of a working-class tenement in India, comprising in all

a dark and ill-ventilated hut, hardly ever exceeds 100 square feet. To this must be added the additional overcrowding which the joint-family system entails in a majority of Indian homes. Grown-up children and their families must share the same house with their father and mother, and sometimes uncles, aunts and cousins. I myself observed several cases in which financial exigencies had forced three or four working-class families, each consisting of a husband and wife, and in some cases even some children, to live in a single room having an area of 100 to 144 square feet. The total population of some of these 'black-holes' sometimes goes up to 15 and 20 souls! Sedgwick and Sandilands, the superintendents of the Bombay tenement census of 1921, have given some very valuable and strik-

CITIES AND WARDS	ONE-ROOM TENEMENTS CONTAINING NUMBER OF FAMILIES				
	2	3	4	5	6 and over
BOMBAY CITY	1,995	658	242	136	135
Lower Colaba	30	26	9	1	..
Fort North	29	13	3	4	..
Chakla	15	7	1	..	4
Market	24	11	19	6	5
Bhuleshwar	144	26	10	4	..
Mahaluxmi	43	26	9	16	21
Tardeo	57	10	2	..	1
Kamathipura	102	41	13	3	1
2nd Nagpada	149	52	14	18	23
Byculla	144	27	8	1	3
Tadwadi	72	26	5	1	..
Mazagaon	97	24	4	3	2
Sewri	141	29	18	12	24
Sion	263	95	23	23	20
Mahim	230	139	56	17	9
Worli	215	55	30	13	13
KARACHI CITY	495	97	57	..	..
Old Town	52	20	8	..	..
Napier	14	3	4	..	..
Market	39	3	3	..	..
Machhi Meani	20	5	3	..	..
Ranchore	57	13	6	..	..
Garden	30	6	5	..	..
Lyari	184	25	9	..	..
SHOLAPORE CITY ¹	1,390	784	487	278	634
HYDERABAD (SINDH)	320	110	86	..	..

¹ The figures relate to buildings.

ing figures in this connection, which deserve serious consideration at the hands of the sanitarian and the social reformer as affording a clue to city deterioration.

The table on page 62 gives details of one-room tenements containing more than one family, in some cities, by wards.

Effects of the Joint Family System.—Similar figures are not available for other cities. But it might be assumed that Cawnpore, Calcutta, Howrah and the industrial towns of the Madras presidency are no better. It is common in Cawnpore, Calcutta and even in Madras for two brothers of the labourers to live in a single room with their families, while the system of grown-up sisters, cousins and other adult relatives and friends of either sex to live with their brethren in the same room is more or less general. In the mill *bastis* of Cawnpore and the jute mill towns, I found this practice to be very common.

The table below gives the number of commensal families per structural house, and the average number of persons per family, in Cawnpore, by *chaks* (sections):

CHAKS	NO. OF STRUCTURAL HOUSES	NO. OF COMMENSAL FAMILIES	NO. OF FAMILIES PER HOUSE	NO. OF PERSONS PER FAMILY
McRobertgunj, 10 ..	293	839	2.8	3.0
Gwaltoli, 11 and 12 ..	759	2,752	3.6	3.0
Permat, 13 ..	390	1,116	2.9	3.0
Civil Lines, 14, 15 ..	207	1,247	6.0	3.1
Kursawar, 17 ..	52	208	4.0	3.1
Patkapur, 20, 24, 26 ..	407	1,951	4.8	3.1
Rotigodam, 27 ..	97	391	4.0	2.8
Filkhana Bazaar, 28 ..	123	439	3.6	2.5
Beldari Mahal, 29 ..	71	266	3.8	3.0
Khas Bazaar, 36 ..	52	294	5.6	4.2
Sirki Mahal, 57 ..	13	413	31.7	3.2
Nachghar, 58 ..	192	608	3.2	3.2
Colletorgunj, 73, 74 ..	299	1,207	4.1	2.3
Juhi Khurd, 84 ..	187	1,036	5.5	3.3
Lachhmanpurwa, 85 ..	331	1,715	5.2	2.9
Anwargunj, 90 ..	71	715	10.1	3.0
Talaq Mahal, 95, 97 ..	36	972	27.0	4.2
Belangunj, 98 ..	4	326	81.5	3.3
Colonelgunj, 101 ..	357	2,121	5.9	3.3
Sisaman, 105 ..	31	305	9.9	3.3

Figures in column 1 refer to the number of *chaks*.

The joint-family system and the social instinct of the Indians is responsible for a large amount of the most degrading forms

of overcrowding in our cities. The physical and moral deterioration that such conditions involve are too manifest to need any comment. They are tolerated in India, but would rouse a volume of indignant protest in every other civilised country.

Overcrowding in India and in England.—Overcrowding, however, is best measured, as has been pointed out before, by the number of persons per room. In England, America, and practically every other advanced country, the living of two persons or more per room is considered to be overcrowding. In fact, the official criterion of overcrowding in a house in England and America is its occupation by two or more persons per room (persons include both adults and children). According to this definition, more than 84 per cent of the tenements in Bombay and over 80 per cent of the population of the city are living in overcrowded conditions, while in Karachi 95 per cent of the tenements and 88 per cent of the population are overcrowded.

Effects of Overcrowding.—In England, on the contrary, three-fourths of the urban dwellings have more than four rooms each; while the total population of the country which could be described as living in overcrowded conditions, according to the definition given above, comprises about a tenth of the total population.¹

It is clear, from the tables given above, that almost all the one- and two-room tenements, which make up about 90 per cent of the total number of tenements in Bombay and Karachi, accommodate more than three to four persons each, while there is a considerable number of tenements even in the better class of houses which shelter over two persons per room. The moral is evident. Except the few wealthy merchants and rich professional men, all the industrial labourers, artisans and middle-class people in our big cities live under conditions which are extremely harmful to their physical, social and moral development. These conditions are not only responsible for the hundreds of preventible deaths in our towns and cities, and the destruction of the health and physique of thousands, as has been pointed out in Part III of this work, but they lie at the root of the characteristic inefficiency, slothfulness and other shortcomings of our mill-hands and artisans. In Great Britain the Government has been spending millions of pounds for the provision

¹ *Report of the Liberal Land Enquiry Committee, England.*

of comfortable and decent house-accommodation and other amenities for its industrial population, and each of the late governments—Coalition, Conservative and Labour—during their short lives, devoted their best attention to the solution of the problem and carried out their respective plans to relieve congestion. It is time that we too bestir ourselves and put our heads together to solve the problem, which has already assumed a formidable shape in our industrial cities.

CHAPTER VI

THE RELATION OF HOUSE RENT TO WAGES

Urban Land Values.—The rapid growth of population in the principal industrial and commercial towns, and the consequent growing demand of land for house accommodation and various other purposes, has led to an enormous increase in land values. The amount of land in the towns being limited, this increased demand had to be met, to a large extent, by crowding together buildings and by piling one storey over another. In towns every available space is being utilised for building purposes without any regard for the free passage of air and light, and we accordingly meet with both congestion and congested housing. In other words, not only too many men live in each house, but too many houses are crammed together in a limited space. The bigger cities, like Bombay and Calcutta, are slowly giving place to regular lines of two-, three-, and four-storied flats and tenement houses, in place of the ordinary detached dwelling houses so common in country places and smaller towns. The stuffy atmosphere of the rooms in such places, coupled with the dreary and congested surroundings and insufficient sanitary and other conveniences, render them altogether unfit for human habitation. While it cannot be gainsaid that municipal and local governments are responsible for a large part of the dirt and squalor and the disordered growth of a town, high rents and low wages play no mean part.

Thus it will be clear that high rents are not only a direct hardship upon the small wage-earners, in so far as they take away a good part of their income, but indirectly leave a most disastrous effect upon their health and well-being.

House Rents in Bombay.—In Bombay, for example, an ordinary unskilled labourer earns Rs. 20 to Rs. 25 per mensem in a cotton factory. He has to pay Rs. 4 to Rs. 7-8 per mensem for a dark, ill-ventilated room, hardly 10 ft. by 10 ft., if he is lucky enough to get one by tipping the *bania*, or through the intercession of some resident friends or relatives, in an old private *chawl* where rents cannot be increased on account of the Rent Restriction Act of 1916. But if he is not so fortunate as that, he will have to pay

from Rs. 10-8 to Rs. 13-8 per mensem for a room, only slightly better, in one of the Development Directorate *chawls*. Here he meets with the first shock of his life when he finds that twenty to fifty per cent of his income is in danger of being swallowed up by house rent alone, an item on which he had been used to spend practically nothing in his village home. He soon finds that the high money wages with which he was lured into the city mean much less comfort than he imagined. He tries to make the best of a bad bargain, and resigns himself to his fate in the characteristic Indian fashion. He arranges for his board with one of his relatives or friends on Rs. 10 to Rs. 12 per mensem, keeps his few belongings in a corner in his friend's room, and passes the night away in the verandah, and more often in the open.

In Bombay at least 70,000 to 80,000 labourers, belonging to the United Provinces and the Punjab, are living more or less under similar conditions. The characteristic inefficiency and the migratory nature of Indian labour is thus largely attributable to bad housing and insanitary conditions in our towns.

House Rents in India and in England.—It might freely be admitted here that an average mill-hand in India does not actually spend as high a proportion of his income on house rent as the mill-hand in England, Germany, France or the United States of America does. But it cannot be said that house accommodation is cheap in the bigger Indian cities. In fact, the rent for a house in Bombay, with as good accommodation and comforts as are found in an ordinary labourer's house in England or America, is not appreciably lower. The fact is, however, explained by the extremely low standard of living of our labourers, after making allowance for their fewer wants on account of climatic conditions, and by their habits of contentment and resignation. It is true that the Indian labourer is hardly half as efficient as his English or American contemporary, but, situated as he is, and the conditions and environment with which he has to put up with being what they are, this is not at all strange. In qualities of perseverance and quiet suffering the Indian is remarkably strong, and it is, therefore, no wonder that he lives on year after year in places and surroundings where another would revolt.

Indian Slums.—Dr. Mukerjee, speaking of conditions in the Bengal coal mines, says that 'the operatives live in filthy and dingy huts, where manhood is brutalised, womanhood dishonoured and

childhood poisoned at the very source.' Is it strange that, under these conditions, both the physical and mental life of the workers are found at their lowest ebb?

To come to the houses and *chawls* where mill-hands actually live, we find that in Bombay there are usually two-, three-, and four-storied buildings, honeycombed with single-room units, either placed back to back, or separated by a closed, narrow *gully* sometimes only two or three feet wide. The rooms and the passages are often pitch dark, so that not infrequently during our enquiries we had to take the help of a lamp or a matchstick to find our way in and out. These blocks, or *chawls* as they are called, are built in rows both parallel to each other and at right-angles, and are separated by *gullies* only three to ten feet wide, which are usually traversed by an open drain. Thus air and light, the two great healing forces which Nature supplies gratis, are effectively blocked out. In fact, some of these quarters may well be compared to steep mountains interspersed with deep valleys. The rooms themselves have very little by way of windows or ventilators, and the few apertures which exist are, more often than not, hung over with sackcloth or paper.

Slumdom in India and in England.—The buildings are, as a rule, built with *pucca* brick and mortar, but the floor is generally *kachcha*, while the partition walls, and frequently even the upper roofs and outer walls, are made of corrugated sheets of iron. The size of the rooms varies from 8 ft. by 8 ft. to 10 ft. by 10 ft., and the rent from Rs. 3-8 to Rs. 7-8. The slums of Glasgow, Liverpool, Dundee, London, etc., about which we hear so much in papers and official publications, and which are steadily being cleared at great expense, are commonly but two stories high, and all are provided with an incomparably better street system and sanitary conveniences than we find anywhere in the poorer quarters in Bombay. Rightly has it been remarked, in the Census of India Report, 1921, that conditions in Bombay are far worse than those in London.¹

Housebuilding by Public Bodies in Bombay.—A fairly large number of tenement houses have been constructed by various public bodies in Bombay city, for their own employees as well as for work-people in general. The following table gives data regarding tenements owned by public bodies in Bombay on 1st June, 1925 :

¹ Marten, *Census of India*, 1921, p. 77.

NAME OF OWNER	NO. OF BUILDINGS	NO. OF TENEMENTS	RENT	REMARKS
Municipality ..	73	2,690	As. 5 to As. 10 per month	For employees only
Improvement Trust	99	8,896	Rs. 4-1 to Rs. 16-8	Concession to Trustmen
Port Trust ..	240	2,498	Free for some and at 10 per cent of salary for others	
G.I.P. Railway ..	20	841	Free	For employees only
B.B. & C.I. Railway	31	303	Free	Do.
Development Directorate ..	..	6,387	Rs. 6-8 to Rs. 12-8	Economic Rent Rs. 16

The Improvement Trust and the Development Directorate *chawls* differ from the others only in the size of the rooms, which varies from 10 ft. by 12 ft. to 10 ft. by 15 ft. Usually a small partition wall separates a portion, 4 ft. by 10 ft., for the oven and the *nahany* (sink for water). Unlike the private *chawls*, these are made entirely of brick and cement, or reinforced concrete, three stories high. The rooms face each other on a common verandah, about 8 ft. wide, while the distance between two blocks varies from 12 ft. to 36 ft. For these improvements the tenants are required to pay a prohibitive rent, varying from Rs. 10-8 to Rs. 17-8 per mensem. Over and above these standard types, there are quite a number of tin *chawls* and dirty *bastis*, where the mill-hands hire an abominable, unsightly 'room,' varying from 6 ft. by 8 ft. to 8 ft. square in size, on Rs. 2 to Rs. 4 per mensem.

Wages in Bombay.—The unskilled labourers, who form a majority of the mill-hands, earn from Rs. 20 to Rs. 30 per mensem, and the skilled labourers from Rs. 25 to Rs. 80, and sometimes even Rs. 100 per mensem. The statistics of prices and wages published by the Government of India show that the wages in 1922 varied from Rs. 8 to Rs. 25 per mensem for unskilled labourers, and from Rs. 25 to Rs. 60 for skilled labourers, in the Manickjee Petit Cotton Mills in Bombay.

Enquiry into Working-class Budgets.—According to the Bombay Labour Office enquiry into wages and cost of living of workmen in Bombay, published by G. Findley Shirras in 1924, 97 per cent of the working-class families live in one-room tenements, and 50.5 per cent of the 2,408 single-room tenements from which statistics were collected were rented within Rs. 3-8 and Rs. 5-8 per

ensem. Municipal records of the same date, which refer to 9,703 single-room tenements, corroborate the same. The enquiry showed that the rents charged by the Improvement Trust, the Municipality, and the Port Trust were lower than those in the private *chawls*. This is, however, due to the fact that the family budgets refer almost entirely to buildings occupied before 1st January, 1916, the date on which the Rent Restriction Act came into force. It has been worked out that, on an average, house rent forms 7·7 per cent of the income of a working-class family. The class of labour which earns below Rs. 30 and from Rs. 30 to Rs. 40 per mensem, however, forms only 2·7 and 11 per cent respectively of the total families investigated. The former class, according to the report, excluding scavengers (who get a favoured rate from the Municipality), spend 10·9 per cent of their income on house rent. It is, however, inexplicable how the Labour Office could find out this average, when a careful scrutiny of the results of the enquiry shows that it did not collect any statistics of house rent from any class of labourers other than scavengers.

The following table gives the percentage expenditure on house rent by income groups:

INCOME CLASSES OF FAMILIES	FAMILIES INVESTIGATED		AVERAGE EXPENDITURE ON HOUSE RENT	
	Total No.	Per Cent	Actual	Percentage
Below Rs. 30 p.m., excluding scavengers .. .. .	..	..	Rs. A. P.	10·9
Below Rs. 30 p.m., including scavengers	68	2·7	2 2 5	7·5
Rs. 30 to Rs. 40	272	11·0	2 15 7	8·6
" 40 to " 50	834	33·7	3 0 5	7·3
" 50 to " 60	539	21·8	4 1 2	8·3
" 60 to " 70	484	19·6	4 1 9	7·4
" 70 to " 80	167	6·8	4 15 9	7·6
" 80 to " 90	70	2·8	5 12 5	8·0
Over Rs. 90	39	1·6	6 6 0	7·5
All incomes	2,473	100·0	3 11 3	7·7

N.B.—An average family consists of 4·2 members, of whom only 1·54, i.e. 1·04 men, ·42 women and ·08 boys or girls, are wage-earners.

Some Defects and Discrepancies.—The figures and averages given above suffer from two serious defects: firstly, the number and proportion of families earning below Rs. 30 is very small, both as compared to their relative importance and numerical strength.

Out of a total number of 155,891¹ labourers engaged in the textile mills in Bombay, no less than 79,059 are unskilled labourers, most of whom are earning less than Rs. 30 a month among their family. Secondly, the figures do not relate to new buildings and refer almost entirely to buildings occupied before 1916, i.e. before the passage of the Rent Restriction Act. Moreover, the inquiry has not emphasised sufficiently the evil of keeping lodgers and sharing a single room by more than one family on account of the high rents.

The following table, which gives the percentage expenditure on house rent incurred by single men of different income-groups, will make the point clear :

INCOME CLASSES OF SINGLE MEN	PERSONS INQUIRED		PERCENTAGE EXPENDITURE ON HOUSE RENT	AVERAGE MONTHLY INCOME
	No.	Percentage		
Below Rs. 30 ..	69	11.4	3.1	Rs. A. P. 25 14 7
Rs. 30 to Rs. 40..	167	27.7	7.8	34 6 3
" 40 to " 50..	207	34.3	7.5	42 9 5
" 50 to " 60..	65	10.8	7.5	53 14 11
" 60 to " 70..	58	9.6	7.3	63 0 3
" 70 to " 80..	27	4.5	7.1	73 5 4
" 80 and over..	10	1.7	7.2	89 6 5
All incomes ..	603	100.0	7.2	43 10 3

N.B.—It has been calculated that, on an average, the people earning over Rs. 40 per mensem spend As. 13.7 per mensem on conveyance to and from the works.

Causes of the Low Percentage Expenditure on House Rent.—The small percentage of their income which single men, earning less than Rs. 30, spend on house rent can only be explained by the fact that most of them share a room with four to six other people. In fact, I found, during my inquiries, some single-room tenements of the size 10 ft. by 14 ft. occupied by no less than 15 adults each.

Another Inquiry into House Rents.—Another inquiry into working-class rents in Bombay, undertaken by the Labour Office, gives more up-to-date information and clearly shows the effect of the Rent Restriction Act on the rents of old and new tenements. Accord-

¹ Sedgwick, *Bombay Tenement Census, 1921, Table of Occupations, Vol. IX, Part II.*

ing to this inquiry, which extended over 8,548 sampled one-room working-class tenements in old buildings and 1,475 one-room working-class tenements in new buildings, i.e. those constructed after 1st January, 1916, the average rent in 1923-24 in tenements in old buildings was Rs. 5-0-2, and in the new Rs. 10 to Rs. 16 per mensem. This represents an increase of 31·2 per cent over the 1914-15 rentals in the old buildings, and of 262·6 per cent over the theoretical rentals in 1914-15 in the new buildings.

The following figures indicate the results of the inquiry :

RENTS OF WORKING-CLASS ONE-ROOM TENEMENTS
(OLD BUILDINGS)

WARDS	NO. OF SAMPLED TENEMENTS	AVERAGE MONTHLY RENT PAID IN		PERCENTAGE INCREASE 1915-24
		1914-15	1923-24	
		Rs. A. P.	Rs. A. P.	
A ..	526	5 6 2	7 2 8	33·1
B ..	430	5 10 11	6 14 0	21·0
C ..	408	5 2 10	6 13 9	32·5
D ..	416	5 7 9	6 11 10	22·9
E ..	2,373	3 13 10	5 1 7	31·9
F ..	2,064	3 3 11	4 3 3	29·5
G ..	2,331	3 0 9	4 2 8	36·8
All wards	8,548	3 13 1	5 0 2	31·2

Some Observations on the Report.—If we take into consideration the fact that there has been very little increase in real wages since 1916, and also that the little increase that they got in 1918-20 has since been brought down, we shall be justified in increasing the actual rents as given in the inquiry into family budgets by at least 30 per cent, which will send up the percentage of house rent to income considerably over 11 in the income group earning below Rs. 30 per mensem. But, as has been shown, the actual percentage of income which is spent on house rent is not as important as the percentage which would be spent if the labourers were to live with any decency.

Expenditure on House Rent.—As it is, if the ordinary labourer were to rent a full room for himself and his family in one of the worst *chawls* in the old buildings of the city, he would have to

spend at least Rs. 4 per mensem, which would come to about 15 to 20 per cent of his income; and if he were to rent a room in the new buildings, which do not come under the purview of the Rent Act, he would have to pay at least Rs. 10-8 per mensem, or 40 to 50 per cent of his monthly income, for house rent alone. If we remember also the fact that the private *chawls* referred to above are altogether unfit for human habitation, and that no person with any sense of humanity in him would wish a human being to live in such places for a single day, the grim realities of the situation become evident.

Housing in Ahmedabad.—Passing on to Ahmedabad, we are confronted with the same deplorable state of affairs. The *chawl* system is common here, as in Bombay, with the difference that the Ahmedabad *chawls* are seldom made of brick and mortar. The floor is almost universally *kachcha*, and the walls are also made of half-baked bricks and mud. They present a most unsightly appearance, and are indeed embodiments of dirt and disease. The overcrowding of houses and inmates is almost as bad as in Bombay, except that we do not find here the two-, three-, and four-storied buildings, which are a common feature of Bombay.

Working-class Houses.—This is, however, neutralised by the fact that *chawls* in Ahmedabad are very often indifferently thatched and in ill-repair. They are generally surrounded by dirt, stinking water and night-soil, for, owing to the want of a sufficient number of latrines and the laxity of municipal discipline, a good many people, especially women and children, go to ease themselves in the streets. Here, as in Bombay, there is hardly one latrine for every 50 residents, and one water-tap for every 50 families. The rooms, moreover, are very dingy, and are frequently partitioned merely with tin, sackcloth or matting. Many of the *chawls* are built altogether underground, while the thatch of others is hardly four feet above the level of the street. More than 75 per cent of the *chawls* have absolutely no plinth. The rents for these dens, 8 ft. by 8 ft., vary from Rs. 2-8 to Rs. 5-8 per mensem. A few hundred tin boxes, 5 ft. high, and some other similar mud huts are rented at Re. 1-8 to Rs. 2 by the mill-hands. Wages of unskilled labourers vary from Rs. 18 to Rs. 22 per mensem.

The Apathy of Mill-owners and Local Bodies.—There seems to be absolutely no excuse for such conditions in Ahmedabad, where there is no dearth of space; in fact, in the *paras* land can be

had for the asking. Moreover, the cost of building in Ahmedabad is not half as great as in Bombay, and it is accordingly possible for employers and local bodies to build sanitary dwelling houses at a moderate cost, which will pay a fair interest on their outlay. The mill-owners are generally very rich, and have been making high profits at the expense of the poor labourers. They can do much to improve the conditions of their employees if they raise their little finger. But they have so far been criminally neglectful of all their duties towards them. Big factory owners and other employers of labour in England and America have done much to improve the lot of their employees, in the way of providing them with cheap recreation and amusements; while examples of industrial magnates spending their accumulated wealth of years on garden cities and model villages for their operatives are increasing every day. Even in Bombay, Madras, Sholapore, Cawnpore, Jamshedpur and Nagpur, mill-owners have been doing their bit in the way of welfare work. In the last two specially, the Tatas have been doing commendable humanitarian work. It is a pity that the Ahmedabad mill-owners, in spite of huge accumulated riches, have done practically nothing for those who made all those riches possible.

Some Figures.—A detailed study of 7,508 working-class tenements, i.e. 35 per cent of the total number of one-room tenements, showed that 79 per cent of the total number of tenements examined were altogether insanitary, and 75 per cent had neither

WARDS	NUMBER OF TENEMENTS WITH RENT PER MONTH								
	Below Re. 1 ¹	Rs. 1 to 2	Rs. 2 to 3	Rs. 3 to 4	Rs. 4 to 5	Rs. 5 to 6	Rs. 6 to 7	Rs. 7 and over	Total
Khadia ..	20	2	15	10	..	..	..	..	47
Kalupur ..	..	..	42	59	130	41	20	64	356
Dariapur ..	1	20	38	28	57	41	..	14	208
Shahpur ..	..	76	165	142	107	12	5	78	585
Jamalpur ..	..	37	53	105	283	84	..	18	670
Railchand ..	..	63	25	38	148	59	50	19	402
Paras ² ..	395	74	471	920	1,230	1,219	714	217	5,240
Total ..	416	281	809	1,392	1,955	1,456	789	410	7,508

¹ This represents only the ground rent. Superstructures, in the case of tenements of this class, are made by the tenants themselves.

² *Paras*, or suburbs, are parts of the city which are outside the city wall, though within the municipal boundary. Most of the factories and the working-class *chawls* are situated in this ward.

any plinth nor ventilation of any kind. The details of house rent given in the preceding page will show that the most predominant rent for working-class tenements is Rs. 4 to Rs. 6 per mensem, while not a small number are rented on Rs. 7 to Rs. 8 per mensem.

Percentage Expenditure on House Rent.—Thus, on an average, one-fourth to one-sixth of the unskilled labourers' income goes to house rent. Individual family budgets which I collected, and the house to house enquiries which I made in Ahmedabad, also showed that, in a majority of cases, 20 per cent of the family income goes to house rent. This brings our rough estimate of the actual percentage expenditure on house rent in Bombay more or less in line with the proportion in Ahmedabad. In Ahmedabad there is very little difference between the houses of the skilled and the unskilled labourers. Accordingly, the former generally spend a much smaller percentage of their income on house rents.

Working-class Housing in Nagpur.—Coming to Nagpur, we meet with a very different state of affairs. Nagpur is more a collection of outgrown villages than a city in the modern sense of the term. Almost all the *mohallas*, except the few central *bazaars*, have retained their rural characteristics up to the present time. People generally live in clusters of mud huts, two to three miles away from their work. Cottages, rather than courtyard houses, are the type found in these labour *bastis*. Each cottage has a small compound, hedged round with vegetable creepers and other plants, which impart to it the natural beauty so characteristic of the Indian village home, except during the rains, when the whole *basti* becomes a big pool of mud and water, through which the residents have actually to wade their way. There is generally no drainage system, and the few open drains, which are casually dug out by the residents, serve merely to collect dirty water, which stagnates for want of a proper outlet. There are no latrines, and people have to ease themselves in the open fields. Light and conservancy arrangements are entirely absent. The cottages are owned by the residents themselves, who live with their families. Rent is practically unknown.

Housebuilding by Workmen.—This, however, does not mean that the labourers get these huts free of charge. The custom here is to rent a small piece of land, 40 ft. to 60 ft. square, on Re. 1-8 to Rs. 6 per annum as ground rent, and to build their own huts; for which they borrow money at exorbitant rates of interest. The ground rent varies more with the proximity of the land to the mills

than with its actual size. An average hut costs about Rs. 50 to Rs. 100 to the labourer, over and above his personal labour, and lasts for about two years. But this is no standard, for we have seen some huts which could not have cost more than Rs. 20, and others, occupied by the superior artisans, which cost them Rs. 200 to Rs. 300. A majority of the huts, however, cost about Rs. 80, and probably the average will also work out near that amount. It may here be mentioned that this is exactly equal to the amount which has been calculated by the Empress Mills for the construction of an ordinary workman's hut in Nagpur. The rates of interest at which the labourers borrow money for these huts varies from 40 to 75 per cent. Thus the labourer has to pay Rs. 5 to Rs. 6 per mensem to the money-lender in order to pay the interest and a part of the principal to free himself from the debt within 20 to 24 months. Individual inquiries showed that they actually pay Rs. 4 to Rs. 10 per mensem for the same. If a labourer is unable to pay this recurring amount, as is very often the case, he has to take another loan, on similar conditions, and the poor man is thus never the master of his house.

Wages and Rents.—The ordinary wages of unskilled adult labourers in Nagpur vary from Rs. 14 to Rs. 20 per mensem. The skilled labourers earn Rs. 22 to anything up to Rs. 77 per mensem. The average wage of an unskilled labourer is Rs. 16, and that of a skilled one Rs. 40; and if we add¹ Rs. 8 and Rs. 20 respectively to these wages as the average amount earned by the women and half-timers, the representative family incomes come to Rs. 24 in the case of unskilled labourers, and Rs. 60 in the case of skilled workmen or artisans. The average monthly amount that they have to pay to the money-lender roughly approximates to Rs. 5-8 and Rs. 8 respectively. Therefore, the percentage of income spent on house rent by a family of unskilled labourers in Nagpur theoretically amounts to 22, and in the case of an artisan family to 13·3.

Industrial Housing in Cawnpore.—In Cawnpore house rents are comparatively low. A number of mills have provided houses for their employees. The Cawnpore Woollen Mills, the Cotton Mills and Cooper, Allen & Co., Boot and Army Equipment Factory—all owned by the British-India Corporation—have each constructed a

¹ We have pointed out before that an average family consists of 4·2 persons, of whom 1·56 are wage-earners.

large number of quarters for their workmen and superior employees.

The following table gives the actual number of tenements provided by the principal factories in Cawnpore, together with other particulars :

NAME OF FACTORY AND SETTLEMENT	NO. OF PERSONS EMPLOYED	NO. OF TENE- MENTS PROVIDED		POPULA- TION OF TENE- MENTS	SIZE AND MONTHLY RENT OF ONE-ROOM TENEMENTS
		1 Room	Larger		
The Cawnpore Woollen Mills (McRobertgunj)	3,232	655	146	2,909	10ft. x 12ft., with verandah 7½ft. wide. Rent, Re. 1-12.
N.W.T. and Cooper, Allen Co.'s (Allengunj)	3,256	880	51	2,688	10ft. x 7ft. and 8ft. x 10ft., with verandah 5ft. wide. Rent, Re. 1-4 and Re. 1-10.
Cotton and Kakomi Mills (Juh) ..	2,661	318	..	252	8½ft. x 9½ft., with verandah 3½ft. wide. Rent, Re. 1-8.
Elgin Mills	2,606	131	35	162	Free
Indian Sugar Works ..	397	168	..	272	Free
Union Indian Sugar Mills	395	191	5	359	Free

Housing Conditions in Mill Settlements.—The one-room tenement is the standard of the workman's dwelling here, as in Bombay and Ahmedabad. Rooms are built in barracks or in parallel and horizontal rows, with a long front verandah, 4 ft. to 7 ft. wide. The size of the rooms varies, from 7 ft. by 10 ft. in Allengunj to 10 ft. by 12 ft. in McRobertgunj. Generally the rooms are built in single rows, but back-to-back rooms are not rare. In spite of the fact that all the barracks are groundfloor structures, there is practically no ventilation in the rooms, which are dark and insanitary. The state of the rooms in the mornings and evenings, when the inmates cook their food, is really pitiable. It is, moreover, not difficult to find such houses occupied by five to ten people.

House Rents and Wages.—Rents vary from Re. 1-8 to Re. 1-12 per mensem for ordinary one-room tenements, and Rs. 3 to Rs. 3-8 for two-room tenements. Wages of unskilled adult male

labourers or coolies vary from Rs. 14 to Rs. 18 per mensem, and of skilled labourers or artisans from Rs. 20 to Rs. 60. Women get Rs. 9 to Rs. 12, and children or half-timers about Rs. 8. An average family of unskilled labourers (1·56 wage-earners) thus earns about Rs. 22, and that of the skilled workmen about Rs. 40. The expenditure on house rent is, therefore, only 7·39 and 8·13 per cent of income respectively.

The state of the private *bastis*, however, is most deplorable. Lachman Purva, Khallasi Lines, Gwal Toli and Patkapur, all are equally abominable. Dirt, stinking open drains, bad odours and general filthiness are the rule, rather than the exception, in these veritable hells. Near Tapeshwari Devi, in Patkapur, the conditions in which the poor labourers live are really most pitiable. Small mud huts, containing two or three dark and dingy rooms, hardly 6 ft. high, are subdivided among two, three, and sometimes even four, families. The only outlet for light and air in these dens is the main door, which is frequently only 2 ft. by 2½ ft. in area. The lanes in these *bastis* are indiscriminately used, or rather abused, as urinals by everybody, while children ease themselves there. Rents are very high and vary from Rs. 2 to Rs. 3 for a small, ill-lighted and ill-ventilated mud hut, which neither gives protection from rains nor from cold blasts or summer winds. The percentage expenditure on house rent of mill-hands living in these *bastis* or *mohallas*, therefore, goes up to about 10 per cent of income.

Workmen's Houses in Calcutta and Howrah.—In Calcutta and Howrah conditions are equally bad. The poorer quarters particularly, and the city generally, are very badly overcrowded. The continuous and heavy increase in house rent has tended to break up the joint-family system and driven the poorer people, and even the middle classes, to live in dark and filthy tenement blocks, overcrowded barracks, or equally overcrowded *bastis*. Frequently also, dwelling houses are divided into a number of mean little tenements, with totally inadequate open spaces, to provide separate accommodation to several co-heirs. This has been a very important factor in the production of a vast amount of insanitary property in Calcutta, where tuberculosis holds undisputed sway. To add to this, working-class tenements in Calcutta, as in Bombay, are several stories high, and this fact considerably intensifies the insanitary conditions of the city. Dr. Mukerjee, writing from intimate knowledge

of Calcutta slums, observes, 'Calcutta, inside the area enclosed by Circular Road and the River Hoogly, contains no less than twenty-two blocks of residential property without any street system and served internally only by tortuous lanes, passages and fragmentary lengths of narrow streets. The average size of each block is 100 acres. The total area is about 2,200 acres, and can perhaps best be comprehended in the form of twenty-two squares of closely built up streetless property, each square measuring about 2,100 ft. by 2,100 ft., or 700 by 700 yards, and they cover only three square miles. If we include areas outside the Circular Road, then we get a total of 2,500 acres of streetless property.'¹ Conditions like these are comparable only with Bombay, whose closely-built 'skyscrapers,' traversed with blind alleys and closed verandahs, have already been described above; or with Cairo, Constantinople, Peking and Canton.

Slumdom par Excellence.—The *basti* or hut system in Machua Bazaar, Bow Bazaar and Chattawallah *gullie* areas in Calcutta present specimens of the most degrading dirt and squalor. In these places the huge streetless tenement blocks give place to several unequal and unsymmetrical blocks of *kachcha bastis* and *chhatrams*. Describing the actual conditions in some of these places, Dr. Mukerjee observes, 'The typical unit of the quarter consists of a central courtyard, some 15 ft. by 10 ft., surrounded on all sides by thatched huts made of mud. Each room gives shelter to some four or five people, men, women and children, there being one bed for the whole family, one tap and one closet for the whole colony. The rent is as high as Rs. 8 a month. Sometimes Anglo-Indian families of four or five members are found living in cells which have been originally built for storing coal, or may have been bathrooms.'² The land on which these *bastis* or colonies are erected generally belongs to one or the other mill-owner, who leases it out to some *sirdars*, or labour-recruiters, who erect the huts on their own account and charge extremely high rents from the labourers. The average size of these dens is 9 ft. by 6 ft. by 5 ft., in each of which a family of four to five people live, store things and cook their food. The tragedy of life occurs when a woman is confined or a man falls sick in one of these veritable hells! Enveloped in thick smoke, overlaid with soot and dust, surrounded

¹ Dr. R. K. Mukerjee, *Comparative Economics*, Vol. II, p. 286.

² Dr. R. K. Mukerjee, *Comparative Economics*, Vol. II, p. 286.

by all sorts of abominable odours, damp and dark, the atmosphere of these huts where the mill-hands live and rear up children acts as deadly poison, which manifests itself in heavy infant mortality rates, tuberculosis and other diseases. In Calcutta, moreover, the stringency of the *purdah* system is another serious obstacle to the reform of the gruesome conditions of housing and environment. 'To effectively seclude the inner apartments from the vulgar gaze,' remarks Dr. H. M. Crake, health officer of Calcutta, 'air and light are shut out and the rooms rendered unfit for human habitation.'²

Wage Rates in Bengal.—Very little is heard about the welfare work, if any, being done by the employers of labour or other charitable and philanthropic associations or individuals, to provide even some variety to the monotonous and squalid life of a labourer. Wages of the ordinary unskilled labourers in the jute mills of Howrah and Calcutta do not go beyond Rs. 20 or Rs. 22 per mensem, while the man fresh from the village hardly gets Rs. 14. These wages are, however, earned after a full month's work. A majority of jute mills remain closed for two days in the week besides on Sundays, and the wages of labourers are reduced correspondingly.

According to the Statistical Department of the Government of India, the average weekly wages in a jute mill in Bengal in 1922 were as under :

AVERAGE WEEKLY WAGES IN A JUTE MILL IN BENGAL, 1922²

CLASS OF LABOUR				AVERAGE WEEKLY PAY IN RUPEES
Weavers	..	..	..	9.2
Beamers	..	..	..	7.6
Winders	..	..	..	6.3
Rovers	..	..	..	5.75
Spinners	..	..	..	5.0
Carders	..	..	..	2.9
Shifters	..	..	..	2.2
Coolies	..	..	..	0.65 per day

House Rents in Calcutta.—House rent, as has been pointed out above, is very high in Calcutta. In spite of the Calcutta Rent Act

¹ Municipal Administration Report, Calcutta, for the year 1922.

² D. N. Ghosh, *Prices and Wages in India*, 1922, published by the Statistical Department, Government of India, p. 228, Table 23 (17).

of 1920, prohibiting the increase of house rent except in cases where the landlord 'has incurred any expenditure on the improvement or structural alteration of any premises,'¹ rents have gone up and the provisions of the Act have been cleverly avoided. So that at present a small room, 6 ft. by 9 ft., in the worst localities, cannot be had for less than a rupee per week, while the average rent for a working-class room or hut is about Re. 1-8 per week. Taking the earnings of an average working-class family to be Rs. 33, which is rather an over-estimate, it would appear that about 20 per cent of their income goes to house rent alone.

The Latrine Cess.—Over and above these unfavourable circumstances, the workers in Howrah and Calcutta have to pay a small cess on latrines, which varies from 4 annas to 6 annas per head per month. In spite of this tax, however, it is distressing to note that the condition of the latrines is very unsatisfactory and the number extremely small. On an average, there is not more than one latrine for every forty people in Calcutta or Howrah.

Housing in Jute Mill Villages.—Conditions in the jute mill towns and the Bengal coalfields are not appreciably different. Although there is no dearth of open space and land is cheap, the sudden and precipitate growth of the mill towns has led to very serious overcrowding and insanitary conditions in places like Bhatpara, Titaghur, Kharagpur, Naihati, Serampur and Bhadreswar. The mill and colliery owners have, no doubt, built *kachcha* and even *pucca* coolie lines, or *dhamas*, near the works, but, as Miss Curjel has rightly pointed out, 'these houses are both insufficient and insanitary.' 'In spite of the abundance of land in jute towns,' Miss Curjel pathetically observes, 'single-room houses, meant for four adults, are sometimes occupied by eleven to sixteen adults.'²

Conditions in the Mill Lines.—The employers generally provide blocks or lines of back-to-back rooms, of the size 8 ft. by 8 ft. or 8 ft. by 10 ft., with frequently a common front verandah, 2 ft. to 4 ft. wide, for the residence of a part of their employees. The lines are generally made of brick and mortar, and have a tiled or a flat roof. The small door, and sometimes also a small window, both opening on the verandah, complete the ventilation. These rooms are never whitewashed from inside, but

¹ Legislative Council Debates, Act No. 3, of 1920, Art. 5.

² D. F. Curjel, *Women's Labour in Bengal Industries*.

are, not infrequently, coloured from outside to please the casual observer. On account of the scarcity of even such rooms, 8 to 12, and sometimes even 15, souls live in a single room. Frequently 3 to 4 women form part of the population of these pigeon-holes. When we enquired as to how so many people sleep inside such a small room—which, by the way, is used for cooking and storing purposes also—we were told that some of the people sleep in the verandah when it is not cold, and one over the other when it is cold! Rents are, however, low, and vary from As. 8 to Re. 1-8 per month.

Conditions in Private Bastis.—In private *bastis*, where rooms are built by *sirdars* or other people, similar overcrowding is invariably coupled with most insanitary and foul surroundings. The buildings are made of mud and bamboo sticks, without any plinth, and are sometimes so closely crowded together that the edges of the tiles of two rows of houses, facing each other, are hardly one foot apart, leaving a narrow *gully* or alley, which serves as an open muddy drain—the receptacle of all kinds of filth—where young urchins play with mud. Such a narrow and dirty *gully* is generally the only passage to these houses.

Rooms and Rents in Jute Towns.—The size of the rooms frequently contracts to only 8 ft. by 6 ft. by 5 ft., while the rents are two to three times higher than those prevalent in mill lines, and vary from Re. 1-4 to Rs. 3 per mensem. The very sight of these dismal dens is abhorrent and sickening. Most of the mills work only for four days in the week, and the wages of an ordinary adult male labourer vary from Rs. 3 to Rs. 3-8 per week, and those of the women and the children from Rs. 2-6 to Rs. 2-14 and Re. 1-14 to Rs. 2-6 respectively. On an average, therefore, a labourer's family in the jute mill towns spends about 5 per cent of its income on house rent if it lives in the mill lines, and 10 per cent of its income if it lives in private *bastis*. Neither the mill quarters nor the *bastis* provide sufficient privacy, and the outside labourers, accordingly, do not bring their families with them.

Immorality and Disease.—This unnatural existence, as has been discussed elsewhere, is the direct cause of the vice and immorality which are rampant in these places. The up-country men are found associated with local women and those with whom they have no legal connection, and quarrels over women are not infrequent. The wide prevalence of venereal diseases among the labourers, as may be seen from the medical records of the mill

doctors, clearly points to this evil ; while gambling and drinking are commonly indulged in by the residents.

Housing Conditions in the Coal Mines.—Conditions in the coal mines are different only in so far that there is less overcrowding in the *dhauras* or coolie lines. Moreover, the conditions seem to be improving slowly on account of the interest which the Jherria and the Asansol Mines Boards of Health have been taking in the problem for the last two years. But even at the present time quite a large number of rickety small dens are visible, where the aboriginal labourers live under most unhealthy and pitiable conditions. But the wide open spaces round about the *dhauras* and the dry climate of the place render them comparatively healthy. On the coal mines the labourers are charged no house rent. It is true, as Dr. Curjel has also pointed out, that no overcrowding is found in the *dhauras*, and that there are generally more quarters than persons ready to live in them. The fact is that, as in the Giridih and, to a smaller extent, in the Jherria coalfields, a large part of the labour force belongs to the villages near the mines, who prefer to walk eight or ten miles, and sometimes even longer distances, to the collieries and return to their villages after two or three days, when they have earned sufficient to subsidise their agricultural income for the week. These labourers avoid the quarters provided by their employers in order to escape the conditions imposed by the mine-owners.

Private Bastis in the Coal Mines.—*Basti* houses, in spite of the fact that they are honeycombed with rooms so as to utilise the space to the utmost possible extent, are more popular among the workers, chiefly because they are detached dwelling-houses, and accordingly afford some privacy to the inmates. Above all, they are free from all interference from the employers. The labourers are prepared to pay higher rents for the sake of these facilities, and also put up with the bad sanitary arrangements which they offer. These dark and gloomy, unventilated, filthy huts, the homes of poverty, prostitution and disease, are rented at Re. 1-8 to Rs. 2 per month. Drink and debauchery are common among the labourers in these places, being the only relaxation available to them after long and tiresome hours of work. Liquor shops are many and are situated quite near the coolie lines, thus directly encouraging the drink habit ; and sometimes brothels also grow up, in many cases with the connivance if not actually under the supervision of the employers.

Lack of Government Regulation.—Municipal regulations, if any, are utterly inadequate and ineffective, while town-planning is anathema. The non-interference policy of the Government with regard to the location of factories, dwelling-houses, latrines and other public places is responsible for much of the dirt and squalor and disordered growth of our towns. It is very important that, at this stage of their growth, the mill and mining towns should be subjected to strict regulation, in order to avoid trouble and unnecessary expenditure in the future.

Wages in the Coal Mines.—Wages in the Bengal coal mines vary from As. 8 to As. 12 per day for a maximum period of twenty days in a month, or Rs. 10 to Rs. 15 per mensem; and in the jute mill towns from Rs. 12 to Rs. 16 per mensem. The report on the prices and wages in India gives the following figures for wages in the collieries in Bengal in 1921:

NAME OF MINE	DAILY WAGES IN RUPEES	
	Miner	Blacksmith
Ranigunge .. ..	.75	.62
Nimcha .. ..	.69	.56
Sankrolia .. ..	.80	.90
Sodepore .. ..	.80	.90
Dobidih .. ..	.85	.95
Average .. ..	.78	.78

Transition from Agricultural to Industrial Life.—In Madras also the conditions are equally bad. The result of a sudden transition from agricultural and communal to an urban industrial life of a people traditionally and temperamentally adapted to communal habits is clearly visible in the tragic conditions in which the poor labourers live in the metropolis and the industrial towns of this presidency. Although conditions have considerably improved, thanks to the humanitarian work of the Buckingham and the Carnatic Mills in building sanitary houses for their workmen, and providing other amenities of life, such as outdoor recreation, crèches, etc., they are still far from satisfactory.

Workmen's Housing in Madras.—In the words of Dr. Mukerjee, 'The squalor, the degradation and the poverty in the slums of Calcutta and Bombay are far outstripped in the slums of Arlapet in Bangalore, and Perambur in Madras. In the Panchama

slum, near Binny's Mill in Bangalore,' he continues, 'the standard size of a room has been 8 ft. by 6 ft., the height at the apex being 5 ft. The door being only 2 ft. by 1 ft., I could squeeze myself with difficulty into the room, to learn to my surprise that the denizens were three adults and two children and also a dog. The husband, the wife and the mother-in-law, as well as the children, were huddled together like beasts. There was also the hen-cover to the left of the aperture which served as the doorway, and numerous chicks flitted about in the dirt dumped in the yard.'¹ Writing about the conditions of manual workers in the city of Madras, the health officer, Dr. Raghavendra Rao, says, 'The filthy conditions of their slums have become their natural habitat and environment. So long as they can get sufficient food, they are prepared to sleep anywhere and to suffer with equanimity the ills and inconveniences attendant on slum-life.' He rightly remarks, 'The conditions amidst which the poor of Madras live certainly do not conduce to habits of cleanliness.'

Slums in Madras.—A considerable proportion of the population dwells in large tenement houses, each room of which is occupied by a separate family. The house itself is often in a sad state of dilapidation, the water-supply inconvenient of access, lavatory accommodation inadequate and in a foul state, common passages dirty, the entire house and backyards damp, ill-paved and littered with refuse and excrement.'² The following graphic description of slum-life in Madras, by Dr. Mukerjee, deserves reproduction in full. He observes, 'In one house I found, besides the husband and wife, as many as nine children, three of whom belonged to a deceased brother. In another Madras slum, perhaps the worst I have visited, I found a father and brother living with four children in a room 4 ft. by 7 ft. by 6 ft. The mother had given birth to a baby in the same room only recently. One hundred and eighty-four [168?] cubic feet for seven souls! The verandah was 2½ ft. by 2 ft., and it was giving protection to an old man who lost his shed in the last storm. . . . In still another hut, 8 ft. by 7 ft. by 6 ft., the poverty was so great that the residents, three adult women and four children, had not even clothes to hide their shame.'³ Trichinopoly, Labbay Lane, Singertop and Jalalkuthri bring out conditions beyond

¹ Dr. R. K. Mukerjee, *Comparative Economics*, Vol. II, pp. 297-98.

² *Annual Report of the Health Officer, Corporation of Madras*, 1917, pp. 2-3.

³ Dr. R. K. Mukerjee, *Comparative Economics*, Vol. II, pp. 299-300.

human imagination. Prostitutes, Panchamas, mill-hands — all are huddled together in the most degrading conditions.

Social Degradation.—Madura, the seat of some of the most ancient and beautiful temples in India, contains some of the most sordid slums. Rooms of the size of 6 ft. by 5 ft. by 5 ft. are indescribable in their filth and squalor. In Matanchheri, a commercial town near Cochin, a heterogeneous group of Jews, Anglo-Indians, Christians and low-class Moslems and Nairs have produced the most abominable filth. Dark and gloomy rooms, of the size 8 ft. by 6 ft. by 5 ft. or 7 ft. by 5 ft. by 6 ft. or 10 ft. by 4 ft. by 5 ft., are built in long lines close to each other, a considerable number of which are occupied by prostitutes and women of ill-fame. 'In Matanchheri the prostitute is more in evidence than her more hard-working and virtuous sister, the coolie woman. In the *bastis* and *chawls* she is more in evidence, and in some cities she is seen in the street day and night, and in some quarters fairly in herds. Along with the overcrowded workshops and congested slums, the grog-shops and the tea and coffee resorts, she seems to be regarded as being as essential to existence as industrialism and the flimsy finery of city life.'¹

Effects of Slum-Life on Children.—After a while one really becomes so permeated and soaked with the enervating squalor of these drab conditions that one tends to regard it as an inevitable evil incidental to town life. 'Make your town sufficiently congested,' observes Professor Pigou, 'sufficiently ludicrous, sufficiently void of open space and grass for children's play, and you go far to write for life over the gate of it, "All hope abandon ye who enter here."'²

House Rents and Wages.—The rents for these dark and gloomy little dens, the seed-pots of debauchery and disease, vary from Re. 1 to Rs. 2 per month, the most predominant being Re. 1-4 and Re. 1-8 per month. Wages in Madras are particularly low. An ordinary Panchama, or any other low-caste worker, does not earn more than Rs. 8 to Rs. 12 in a month, while women earn about Rs. 6 to Rs. 8, and children Rs. 5 to Rs. 6. An average worker's family living in the slum described above, therefore, spends about 10 to 15 per cent of its small earnings on house rent. Thus malnutrition combines with insanitation and overcrowding to annihilate the physical and moral existence of delicate mothers, young children

¹ Dr. R. K. Mukerjee, *Comparative Economics*, Vol. II, p. 302.

² Prof. A. C. Pigou, *Essays in Applied Economics*, p. 115.

and old persons, who are naturally ill-fitted to bear the trials and economic stress of life.

Comparison with Conditions in the West.—At this stage it will be interesting and instructive to compare the conditions of living in Indian cities with some of the industrial centres of Europe and America, where industrialism is most advanced. Although the housing conditions in the industrial cities of Great Britain, France, Germany and Belgium, and in the growing cities of the New World, were almost equally bad in the last decennium of the nineteenth and the beginning of the twentieth century, as is clear from the numerous reports of committees and commissions which have investigated into their local conditions, it is an incontrovertible fact that official and non-official efforts and legislation have considerably improved the situation in most of the Western cities to-day. The rapid increase of house rent in the chief industrial and commercial cities of the United States of America, Great Britain and the Continent during and immediately after the Great War has, however, caused no inconsiderable anxiety to the local administrators and other public men interested in the social, economic and industrial growth of their countries. Most of the countries had to take recourse to law to prohibit or limit the increase in house rent and to undertake or subsidise extensive housing projects. Over and above these direct methods, town-planning, the improvement of transport facilities, technical improvement in the methods of building, the substitution of tenement-blocks for small houses, the encouragement of settlement on the land, the promotion of garden cities, public or communal ownership of building land, the organisation of credit, etc., had considerably improved the housing conditions in the West immediately before the War.

Housing and the War.—The War, however, marks another turning point in the history of the housing problem in Europe and the New World. The scarcity of capital in the building trades, the diversion of a considerable number of building workers to the theatres of war, the appropriation of all kinds of building materials for purposes of war, and the rise in the cost of building material, in common with general prices, coupled with an enormous amount of destruction of houses in countries which were actually the scene of military operations, and the decline of industry in the neutral countries—all led to an unprecedented scarcity of house accommodation.

The following table shows the net increase in the number of dwellings—that is, the excess of those built over those demolished—in the principal belligerent and neutral countries in Europe during the War :

BUILDING DURING THE WAR

NAMES OF PLACES	1913	1914	1915	1916	1917	1918
Austria (Vienna) ..	13,128	8,666	4,726	835	314	36
France (Paris) ..	10,642	11,959	2,258	2,290	1,239	1,060
Germany (35 towns) ..	45,220	32,330	13,171	4,685	1,712	..
Hungary (Budapest) ..	3,745	3,305	2,284	391	152	435
Italy (Rome) ¹ ..	7,331	8,054	2,642	2,168	700	996
(Milan) ..	19,508	13,945	9,793	3,525	1,505	1,432
Denmark (Copenhagen) ..	..	13,578	2,391	1,337	3,102	2,153
Netherlands (10 towns) ..	..	5,667	3,995	3,783	3,849	4,718
Switzerland ¹ ..	3,598	2,273	1,604	1,220	965	897
Norway (5 towns) ¹ ..	1,627	1,187	1,012	1,092	1,497	1,049
Sweden ¹ ..	8,594	7,488	5,132	5,754	6,818	5,203
Finland (Helsingfors) ¹ ..	2,632	775	314	29	232	130
Great Britain ² ..	56,62,032	55,47,551	25,15,825	8,66,127	4,09,691	2,39,737

Rent Restriction Acts.—During the War the steady flow of workers into the industrial centres to work in the industries of war, the abrupt stoppage of emigration and the influx of foreigners, especially from belligerent countries, all led to a considerable overcrowding into the towns, while the return of millions of demobilised soldiers, prisoners of war and civil internees to their homes after the close of the hostilities led to an enormous increase of marriages, and the consequent congestion in towns. The number of vacant houses dwindled to insignificance, while the number of persons in want of dwellings swelled enormously. All these causes in normal times would have led to an enormous increase of rents, which the tenants would have found it extremely difficult to pay. In every European country, accordingly, the state stepped in to protect the tenants. In France, Italy and Germany rent moratoriums were granted in one form or another for the period of the War, while in England and Russia Rent Restriction Acts were passed early in December, 1915. Denmark, Norway, Roumania, Hungary, Austria, Italy, Netherlands, Switzerland, Sweden, Germany and France soon

¹ Dwellings or number of rooms constructed.

² Total value approved by local authorities for expenditure on the construction of houses.

followed suit. Poland, Serb-Croat-Sloavene, Czechoslovakia, Belgium and Finland also introduced rent restriction laws, which have all been salutary in their effect. The result is clearly visible in the decreasing percentage of expenditure on house rent in almost every country.

The following figures, collected on the cost of living index numbers in the principal Western countries, indicate the percentage expenditure on house rent since 1913:¹

COUNTRY	1913	1919	1920	1921	1922	1923
United States ..	18.1	11.7	11.3	16.0	17.4	18.05
Denmark ..	14.2	7.6	7.1	8.5	11.06	11.14
Norway ..	15.7	7.02	7.6	8.4	10.3	11.4
Sweden ..	11.9	5.6	5.7	5.8	10.2	11.2
Switzerland ..	10.4	..	..	7.03	9.88	9.9
Great Britain ..	16.0	..	7.4	10.95	13.55	13.07
Finland ..	11.8	..	4.3	5.4	7.9	10.3
France ..	12.0	5.01	3.52	4.3	6.4	7.2
Italy ..	11.4	4.07	2.79	3.21	4.86	4.94
Germany ..	18.0	..	..	..	1.15	0.34
Austria ..	14.6	..	..	..	0.12	0.66
Hungary ..	18.0	1.08	0.69	1.06	0.43	0.22
India ..	5.1	13.3	..	..	..	16.7

Their Relaxation.—Legislation for the protection of tenants was recognised as a social necessity, but, with the increasing realisation of its economic effects, more especially the check to building, there has been a growth of feeling for its withdrawal. Hence the tendency towards the abolition or the relaxation of rent restriction laws in most of the European countries, and particularly in the neutral countries. In Denmark the process of relaxation began in 1923, and was completed on 1st May, 1925. In Sweden tenant protection was to disappear completely by 30th September, 1926, while Switzerland began the relaxation in 1922. Three of the belligerent countries have already withdrawn their emergency legislation, Finland on 6th June, 1922, the Serb-Croat-Sloavene Kingdoms on 1st January, 1923, and Italy on 1st July, 1923; Germany and Poland have been seriously thinking of decontrolling the rents since 1923, while Hungary started on a graduated repeal on 16th March, 1923. In other countries, though it has been found impossible to withdraw such legislation, there is an obvious tendency to

¹ *European Housing Problems Since the War*, p. 29.

adapt rents to the increased cost of living, and progressively to restrict control to the smaller class of houses. Thus the proportion of house rent to income was kept artificially down by the action of the states during and immediately after the War, and the withdrawal of the restrictions has slowly tended to a return to normal conditions. But in no case has the increase in house rents been greater than the increase in wages. Moreover, in all countries where the regulations for the protection of tenants have been relaxed, efforts have been made to mitigate the hardships of the tenants in various ways.

Conditions in India.—In India, however, the tendency has been just the opposite. The Rent Restriction Acts are confined to the cities of Bombay and Calcutta, and even there the rents have increased, as has been shown above. Thus rents in India have increased considerably everywhere, while wages have remained more or less stationary. The inevitable result of these causes has been an increasing congestion in our industrial cities and unprecedented hardships and sufferings upon the poor manual workers.

The table at the head of the next page indicates the state of affairs with regard to house rent in Indian towns, as compared to some foreign countries:

High Rents in India.—The figures given in the following table show that the percentage expenditure on house rent in Indian cities at the present time is distinctly higher than in any other country in the world, and that the conditions in India are not yet stable. The inquiry into the working-class cost of living in Bombay, published by G. Findley Shirras, however, gives a very different idea. As has already been pointed out, the inquiry confined itself largely to the comparatively superior class of labourers and artisans, while it ignored the more important, because the more numerous, class represented by unskilled low-caste labourers. Moreover, the inquiry, although it extended right up to 1923 and has made use of the 1921 census figures, has confined itself to buildings occupied before 1916 with regard to house rent. In spite of the Rent Restriction Act, passed in January, 1916, rents in the old buildings have increased by 31 per cent from 1916 to 1923, while rents in the new buildings, to which the Rent Act does not apply, have more than trebled during the same time. Wages, on the other hand, have practically remained stationary during this time. The problem of

PERCENTAGE EXPENDITURE ON HOUSE RENT IN THE
PRINCIPAL COUNTRIES IN 1923

PLACE	PERCENTAGE	PLACE	PERCENTAGE	REMARKS
United States ..	18.01	BOMBAY		
Boston, Mass. ..	12.8	OLD BUILDINGS—		
Chicago ..	14.9	Govt. L.O. Enquiry ..	10.98	
New York ..	14.3	Working-class Budgets—		
Philadelphia ..	13.2	General average ..	7.7	
Great Britain ..	13.07	Families earning less		
Germany ..	0.34	than Rs. 30 p.m. ..	10.9	
Austria ..	0.60	Our Estimate—		
Hungary ..	0.22	Unskilled labour ..	20.0	Actual
Denmark ..	11.14	Skilled labour ..	15.0	
Norway ..	11.4	NEW BUILDINGS—		
Sweden ..	11.4	Our Estimate—		
Finland ..	10.3	Unskilled labour ..	50.0	Theoretical
Switzerland ..	9.9	Skilled labour ..	40.0	
France ..	7.2	AHMEDABAD		
Italy ..	4.9	Our Estimate ..	20.0	Actual
		NAGPUR		
		Our Estimate—		
		Unskilled labour ..	22.0	Theoretical
		Skilled labour ..	13.3	
		CAWNPORE		
		In mill quarters—		
		Skilled labour ..	8.13	Actual
		Unskilled labour ..	7.39	
		In <i>bastis</i> ..	20.0	
		CALCUTTA	20.0	
		JUTE MILL TOWNS—		
		Private <i>bastis</i> ..	10.0	
		Mill lines ..	5.0	
		MADRAS	10 to 15	

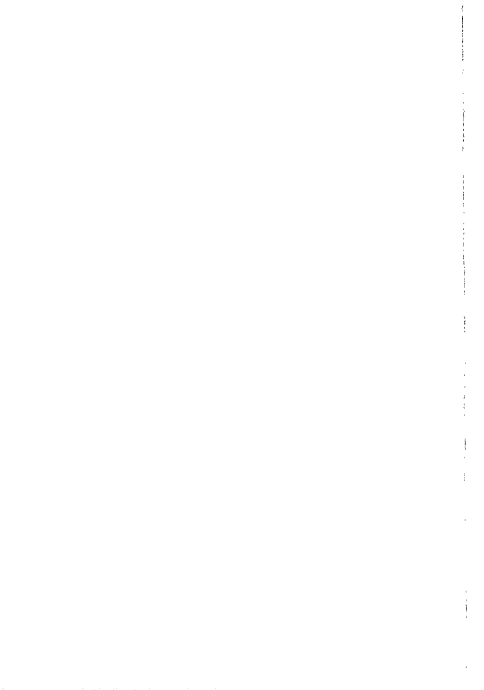
house rent in Bombay, therefore, is much more serious at the present time than it ever was before.

European and Indian Tendencies.—In England and the Continent, on the other hand, wages have risen considerably, whereas rents have been kept down by Rent Restriction Acts and state aid to the building industry. The result is that the percentage expenditure on house rent in almost all the Western countries, with the exception of the United States and, to a smaller extent, Great Britain, Switzerland, Finland, Sweden, Norway and Denmark, which have slowly relaxed the restrictions, has appreciably gone down.

The two tendencies working in opposite directions have rendered comparison between the Indian and the Western figures at the present time, in this particular case, rather unreal and misleading

But, even making allowance for these factors, we cannot agree with the ludicrously low figure at which the percentage expenditure on house rent has been shown in the Labour Office enquiry into working-class budgets in Bombay.

PART III
HOUSING AND PUBLIC HEALTH



CHAPTER VII

THE RELATION OF HOUSE ACCOMMODATION TO INFANT MORTALITY

Infant Welfare.—In no sphere have the effects of congestion been more marked than on the life and well-being of the infants of the country. It is, however, only recently that the subject has received any attention in responsible quarters. With the inauguration of the Maternity and Child Welfare League by Lady Chelmsford and the All-India Baby Week by Lady Reading, the gravity of the problem has been prominently brought to the notice of the general public. The welfare of the infants is always the prime duty of the state, because on them rests not only the future prosperity of a nation, but also its very existence. It is not, however, sufficiently realised that the growing congestion in our industrial towns is one of the main causes of this extravagant waste of human life and energy. A glance at the map of density and infant mortality in England shows, with few exceptions, that towns with a low infant mortality are placed in less crowded areas than those with a high infant mortality.

Infant Mortality in India.—According to the latest report of the Public Health Commissioner with the Government of India, 1,421,725 children died in British India in the year 1927, and 1,587,091 in the year 1926, before they attained the age of one. The commissioner has rightly pointed out that, 'Infant mortality is a sensitive index of the health conditions, especially as regards general sanitation under which the people live; it is these conditions which require attention, if any real influence on infant mortality and on the health of a nation is to be exercised. That close on a quarter of the total deaths should be of infants is a clear indication that a clean environment—the first essential of health—is neglected. Infants respond to the nature of the environment more readily than human beings at later periods of life, and a rise in the percentage of infantile deaths to total deaths means that the epidemic diseases, which affect adults to a greater degree, have been less prevalent.'¹

¹ *Report of the Public Health Commissioner with the Government of India*, for the year 1922, Vol. I, pp. 88-89.

The infantile death-rate calculated on the total number of births recorded during the year was 166·9 per 1,000 births, as compared to 189·8 in 1926, and 188·7 in 1925. The corresponding figures for England and Wales were 70, 70 and 75 respectively. It will thus be clear that the Indian rate is considerably over double the rate prevalent in England. It is also remarkable to note that in India about one-fourth of the deaths occur within a year of birth, while in England only one-ninth of the total deaths take place in the first year of life.

The following table indicates the percentage of deaths within one year of birth to total deaths :

PLACES	1925	1926	1927
India	23·7	24·6	23·7
Bombay	22·6	25·6	24·8
Calcutta	18·3	18·1	15·1
Madras	25·7	25·8	26·3
Nagpur	34·0	36·5	30·0

The present agency for the collection of public health statistics is utterly inadequate and imperfect, and, therefore, the accuracy of most of the figures is very doubtful. Figures are, moreover, very incomplete, and hence satisfactory comparisons are difficult to obtain. But so long as the collection of vital statistics is not more systematic and complete, we must depend upon the present figures for analysing social phenomena, and content ourselves with such inferences as can be drawn from them.

According to the instructions issued by the Public Health Commissioner with the Government of India, a certain percentage of the vital statistics of every province is checked by the local health staff. The table at the bottom of page 97 indicates the results of such enquiries in 1927.

Infant Mortality by Months.—It is again noteworthy that almost half of the total deaths of infants in British India (49·5 per cent) occur during the first month of life, and about one-third in the first week.

The following table gives the exact percentages of infantile deaths in the various age-groups to total infant mortality in 1927 :

HOUSE ACCOMMODATION AND CHILD MORTALITY 97

PROVINCES	UNDER ONE WEEK	UNDER ONE MONTH	1 TO 6 MONTHS	6 TO 12 MONTHS	TOTAL INFANT MORTALITY PER 1,000 BIRTHS, 1927
Bengal .. ..	..	53.7	26.5	19.8	178
United Provinces	31.5	48.6	23.3	23.1	152
Bihar and Orissa	39.7	54.4	28.7	16.9	133
Madras	37.3	54.4	24.5	21.1	175
Bombay	24.1	41.9	33.8	24.3	161
Central Provinces	28.8	48.6	25.5	26.0	222
N.-W.F. Provinces	26.1	43.2	31.4	25.4	151
Burma	13.4	28.0	51.4	20.6	198
Coorg	43.3	61.8	20.6	17.6	260
Ajmer-Merwara	18.5	30.8	36.3	32.8	225
Punjab .. ..	..	55.1	28.6	26.3	168
Assam .. ..	..	54.1	30.1	15.9	171
Delhi .. ..	..	37.0	32.2	30.8	192
Total for British India ..	32.1	49.5	28.5	22.0	167

High Mortality within the First Few Months after Birth.—A study of the above table will show that 78 per cent of the total infantile deaths in British India occur within the first six months of life. Some of the provinces, especially Bihar and Orissa, Assam, Coorg, Bengal and the United Provinces, record considerably higher proportions. While poverty, ignorance and bad social customs have undoubted effects upon general health and longevity, the causes of a high infant mortality rate and a large number of deaths within a short time of birth lie mainly in the dark, dingy rooms in which the mother and the child have to spend

PROVINCE AND VERIFICATION AGENCY				NUMBER OF BIRTHS AND DEATHS VERIFIED	PER CENT OMISSION ERROR		
					Births	Deaths	Both
N.-W.F. Province	..	..	..	85,641	..	..	6.5
Bengal, Villages	..	..	..	..	1.3	.9	..
United Provinces--							
Health Staff	..	..	..	211,341	..	..	6.4
Local Authorities	..	..	..	145,254	3.81	3.01	..
Vaccination Staff	..	..	..	1,215,334	.95	.55	..
Assam--Towns	..	..	..	..	3.80	2.11	..
Villages	..	..	..	56,698	5.78	3.89	..
Punjab	..	..	..	1,252,877	1.7	1.28	..
Bihar and Orissa	..	..	..	20,237	..	..	1.52
Central Provinces	..	..	..	1,210,849	..	..	.47
Burma	..	..	..	440,199	Not av	ailable	..
Bombay Presidency	..	..	..	..	2,287*	143*	..

* Refers to number of omissions.

the major part of their period of adolescence, and the impure atmosphere which they breathe at this delicate time of their life.

Immigration of Infants into Bombay City.—In the case of Bombay it is interesting to note that, as Dr. Sandilands, the health officer of Bombay, also admits, the figures are vitiated by one important factor. Over 31 per cent of the total number of infants in the city do not appear on the municipal register of births, because they have been born elsewhere. No infant is likely to be brought into the city before he is one month old, and very few before they are six months. To that extent, therefore, the percentage of infantile deaths below one month to total infantile deaths is understated in comparison to infantile deaths over six months. If allowance is made for this important deflection in the percentages of deaths within one month to total deaths in Bombay city, the proportion will rise still higher.

Similar considerations hold good, to a greater or less extent, in the case of other important industrial and commercial cities like Calcutta, Rangoon, Cawnpore, Ahmedabad, etc., where there is a regular stream of immigrants from the surrounding country.

Deaths within a Short Time of Birth.—A high percentage of deaths in infants under one week indicates exhaustion and weakness in the mother and unsatisfactory conditions attending childbirth, and that under one month indicates low vitality in the infant over and above the other causes. Impure air and dirty surroundings are chiefly responsible for deaths between one and three months, while malnutrition, bad water, carelessness and crammed atmosphere are generally responsible for infantile deaths over three months.

The following table gives the percentages of children's deaths in different age-periods to total deaths under one year, in some Indian cities, in 1927:

CITIES	PERCENTAGE OF DEATHS WITHIN ONE YEAR					Infant mortality per 1,000 births	Death-rate (Total mortality per 1,000 population)
	Under one week	Under one month	1 to 3 months	3 to 6 months	6 to 12 months		
Madras ..	24.1	41.1	..	32.2	26.7	237.6	42.3
Calcutta ..	36.8	46.7	16.5	17.0	19.8	339.7	34.2
Bombay ..	23.1	37.2	..	28.4	34.4	316.0	21.3
Nagpur ..	32.2	46.0	..	27.8	25.9	261.6	47.2

Effects of the Environment.—The figures are significant. Death within a month of birth, and more so within a week, is obviously due to maternal conditions, which are inseparably connected with the environment. Overcrowded conditions and insanitary surroundings are bound to affect the delicate nerves of the babies and the frail mothers. The result is that the babies are weak and sickly when they are born, and lack the vitality to stand the stuffy atmosphere of damp and dreary rooms, impervious alike to fresh air and sunshine. In the bigger industrial and commercial cities such conditions end in appalling infant mortality rates.

In this connection, it is important to note the observations of Rao Bahadur Dr. Raghavendra Rao, health officer of Madras, who writes from personal knowledge. Says Dr. Rao, 'The growth of a child is a continuous process, commencing at least six months prior to birth to the age of about four years—a process not interrupted either by the act of birth or by the act of weaning. It is a remarkable fact that, however great may be the degree of poverty and degradation of the parents, the great majority of the children are born healthy. By virtue of some mysterious law of transmitted impulse, the unborn child fights strenuously for its own health at the expense of its mother, and arrives in the world with a full chance of living a normal physical existence. Infantile mortality thus may be considered as largely the capitulation of the young and delicate organism to the adverse conditions into which it is born.'

Effects of the Industrial Employment of Women.—Although it is true, as has been indicated in this chapter, and as Dr. Newman has emphasised while discussing the causes of excessive infant mortality, that the dietary plays a part, but the home plays a vastly greater part in the causation of infant mortality. It cannot be gainsaid that the industrial employment of women affects the infant mortality rate—both directly through ante-natal influences connected with the mother's work, and indirectly through over-strain, exhaustion and occupational diseases. The excessive fatality from premature and immature births in the bigger industrial cities must largely, if not entirely, be due to the factory employment of women.

In this connection, the following table of infantile deaths within one month of birth among women receiving maternity benefits from the mills, from an average of 1,322 women employed by the Empress Mills, Nagpur, is very instructive :

STATEMENT OF MATERNITY ALLOWANCE AND INFANTILE
DEATHS AMONG WOMEN EMPLOYED IN THE
EMPRESS MILLS, NAGPUR

PERIOD DURING WHICH ALLOWANCE WAS PAID TO WOMEN	NO. RECEIVING ALLOWANCE	BABIES ALIVE WHEN SECOND MONTH'S ALLOWANCE WAS PAID	NO. DEAD WITHIN 1 MONTH	RATIO OF DEATHS WITHIN 1 MONTH TO 1,000 BIRTHS
August to December, 1921 ..	58	47	11	190
January to December, 1922 ..	145	123	22	150
January to December, 1923 ..	147	120	27	180
January to December, 1924 ..	147	123	19	130

Undesirability of Strain during Pregnancy.—The value of the figures given above is considerably enhanced by the fact that they relate exclusively to permanent employees of the mill, for the company pays maternity benefits only to those women who have put in a minimum amount of service, and not to those only casually employed in the mills. In other words, the figures give a fair indication of the effects of factory life on women and their children. The high mortality rates among children within one month of birth in their case must, therefore, be largely due to the industrial employment of expectant mothers. The dirty and congested surroundings, and polluted atmosphere of the houses where they live, are undoubtedly the general cause, but factory employment seems to play no mean part. The lack of statistics prevents any detailed investigation in this sphere, but the foregoing table indicates the need for a comprehensive investigation into the problem.

Causes of Infantile Deaths, Classified.—To sum up, the outstanding causes of a high death-rate among children are: *environmental*—such as polluted air, congestion of population, and insanitary surroundings; *personal*—consisting in ignorance, carelessness and dirty habits; *industrial*—connected with overstrain, exhaustion and occupational diseases; and, lastly, *poverty*—compelling the labourers to live on insufficient and unwholesome food and clothing, and encouraging the mother to start work too soon after confinement, and the consequent drugging and insufficient care of the child.

The same facts are corroborated by an analysis of infantile deaths at different age-periods. Thus debility, premature birth and respiratory diseases cover in themselves almost three-fourths of the total infantile deaths in Bombay city. Conditions in the other

industrial cities are not appreciably different. Debility, premature birth and similar wasteful diseases are in a high degree connected with ante-natal influences, while respiratory diseases and lung troubles are closely connected with imprudent exposure and insufficient clothing.

The following table gives the percentages of infantile deaths from the principal causes, at several age-periods, in 1927, in the city of Bombay :

AGE-PERIODS	SMALL-POX	DYSENTERY AND DIARRHŒA	DEBILITY AND PREMATURE BIRTH	RESPIRATORY DISEASES	OTHER CAUSES	TOTAL
Under 1 week	..	0.1	92.6	0.2	7.1	100
1 to 4 weeks ..	0.4	2.7	86.9	1.2	8.8	100
1 to 6 months	2.8	8.2	32.0	34.6	19.9	100
6 to 12 months	3.9	7.5	7.4	60.7	17.3	100
Total ..	4.0	5.4	45.3	30.9	14.4	100

'Environmental conditions in a poor Indian home,' rightly observes Dr. Rao, 'are neither conducive for a safe delivery nor for healthy upbringing of the infant. The house itself is overcrowded, with eight to twelve tenants. Each family of four to five souls has but one room for living, which opens on to a yard, often uncovered, unpaved and undrained. House refuse and other sources of contamination are in, or close to, the house ; while in the unlighted and undrained premises cleanliness is rendered difficult.'

Reduction of Infant Mortality in England.—In England particularly, and in Europe and America in general, town-planning and sustained welfare work, coupled with improved sanitation and strict supervision of slum dwellings and other condemned houses, have reduced infant mortality to very low figures. It is deplorable to find that conditions in India are improving very slowly, if at all. 'All over the country,' observes Dr. Ashby, 'sanitary authorities are now working hard to get all the back-to-back houses pulled down, and even in the large cities of densely-populated countries, such as Durham and Lancashire, a vast amount of bad housing is being steadily improved.'¹

The following table gives the comparative infant mortality rates per 1,000 births in England and India, from 1911 up to the present day :

¹ H. T. Ashby, *Infant Mortality*, p. 53.

NAME OF PLACE	1911	1915	1919	1923	1925	1926	1927
England ..	130.1	109.72	89.13	69	75	70	70
India ..	252.8	221.9	224.5	176	174	189	167

The cities bring out a still greater contrast.

The following table gives the infant mortality rate per 1,000 births in some Indian cities since 1921. A few statistics for foreign cities are added for comparison :

INFANT MORTALITY PER 1,000 BIRTHS

TOWNS	1921	1925	1926	1927
Bombay	667	450	389	316
Calcutta	330	326	372	340
Madras	282	279	282	238
Rangoon	322	352	320	294
Howrah	284	291	339	344
Poona	876	611	733	574
Ahmedabad	348	323	438	287
Karachi	270	222	253	212
Cawnpore	580	420	484	323
Benares	319	253	314	225
Lucknow	331	260	287	256
Nagpur	376	258	302	254
Berlin	135	92	..	86
Liverpool	117	97	105	95
Manchester	111	..	87	86
Birmingham	83	75	86	94
Paris	95	89	..	86
London	81	66	64	59
New York	71	64	68	56
Vienna	146	98	..	89

Evil Effects of High Infant Mortality.—The figures speak for themselves and comment seems superfluous. It should, however, be pointed out that the evils of such a high mortality do not end with the permanent loss of the equivalent man-power of the country, because the causes which bring about the death of some weaken and injure the health and physique of the others. Thus not only is the energy of those engaged in the production of the child wasted, but the mothers are left enfeebled and depressed. The evil does not rest there, because such diseases are generally infectious and transmit their germs to other members of the family and to neighbours.

The congested and dirty surroundings contribute to the spread of the infection. Thus the gloom spreads throughout the city.

Other Causes of Infantile Deaths.—We ought to mention here that we do not ignore other subsidiary causes which lie at the root of this appalling child mortality. The poverty and ignorance of the people, the *pardah* system, which compels the women to resort to the innermost apartments, from where air and sunshine are completely shut out, early marriage, and, above all, ignorant and inefficient midwifery, all go to aggravate the evil. But there can be no doubt that congestion, coupled with unhygienic and filthy surroundings, is the chief cause of this extraordinarily high mortality.

High Birth-rate in Madras.—In Madras the absence of any disparity in the proportions of the sexes, unlike the other big industrial and commercial cities, encourages a high birth-rate. The proportion of infants to the total population is accordingly higher in Madras than anywhere else in India. Thus in Madras children below the age of five form about 11 per cent of the population, as compared to 7 and 6·5 per cent in Calcutta and Bombay respectively. Consequently, the effects of insanitation, overcrowding and congestion in Madras are far more shocking as regards the decimation of children.

The Extent of Overcrowding in Bombay.—In her final report to the Bombay Legislative Council, in 1922, on maternity benefits to female industrial workers, Dr. Barnes, the lady doctor, speaks of rooms occupied by more than one family. In one such room, 15 ft. by 12 ft., she found six families living. Each one of the families had a separate oven for itself, and the total population of the room was thirty, including adults and children. Three out of six of the women who lived in that room were shortly expecting to be delivered. On being questioned as to how she would arrange for privacy in that room, the district nurse pointed out a space, 3 ft. by 4 ft., which was screened off by old rags and sacks from the rest and served the purpose. 'The atmosphere at night of that room,' remarks the lady doctor, 'filled with smoke from the six ovens and other impurities, would certainly physically handicap any woman and infant both before and after delivery.' Continuing, she observes, 'In a room in the basement of a house conditions were worse. Here daylight with difficulty penetrated, sunlight never; and sunlight we know is inimical to the life of most pathogenical

organisms!' She concludes with a pathetic statement that, 'the hours spent in the mills were healthier and more hygienic for the women industrial workers than those in their own *chawls*; and that, notwithstanding the fibre-laden atmosphere in the work-rooms, these women had better places to work in than their homes, where every ventilation space was packed to avoid the ingress of fresh air; and where, for fourteen hours of the twenty-four, the family inhaled an atmosphere laden with smoke and other impurities.' Common sense demands, and social and hygienic principles enjoin, that a family should have at least one room to itself for permanent residence. It might be possible for a family to accommodate friends and relatives temporarily, or even for a longer time, if poverty and pressure of space demands it; but it is hardly conceivable for two families or more to live permanently in only one room with any amount of decency.

In Bombay, out of 175,001 single-room tenements, no less than 1,955 accommodate two families apiece, and as many as 1,171 shelter more than two families each. No wonder that the babies in these places are born only to die. A study of infant mortality in the principal industrial cities of India by wards reveal the extent of mischief that overcrowding and insanitation cause.

Effects of Congestion on Infant Mortality.—It will be clear, from the tables given in Appendix IV (a), that the more congested quarters are suffering from a considerably higher infant mortality rate than others. 'The housing of the poor,' observes Dr. Ashby, 'has a very direct bearing not only on infant mortality, but also on the whole death-rate. . . . Homelessness and the habits and customs of town-life operate most injuriously on infancy. There are far too many wretched dwellings and tenements,' he continues, 'and these all tend to foster degradation and crime. Slums have a tendency to breed slums, for the advent of an undesirable family into a street drives away the decent, respectable people.'¹

More Deaths than Births in Cawnpore.—It is a matter of surprise that in some of the Cawnpore *mahals* infantile deaths exceed the total number of births. The fact is that there is a constant immigration of men and women, sometimes with small children, from the surrounding country to Cawnpore, like other

¹ H. T. Ashby, *Infant Mortality* (Cambridge Public Health Series), pp. 47-48.

industrial cities, for the sake of employment. The atmosphere of the *bastis* in which they have to put up more often than not seals the fate of babies used to fresh air and light. In such cases the effects of overcrowded and insanitary conditions on the infant death-rate are evident, and no words are needed to enlarge upon their ghastly significance.

The following statistics, culled from the municipal records of Cawnpore, clearly indicate the effects of congested and insanitary conditions on the lives of infants :

WARDS	Infant Mortality in							
	1921	1922	1923	1924	1925	1926	1927	1928
Khallasi Lines ..	413	390	436	442	266	441	341	412
Colonelgunj ..	537	528	362	377	383	459	229	321
Gwal Toll ..	522	481	550	468	494	447	331	364
Lachman Purva ..	671	344	389	547	308	364	378	328
Rai Purva ..	727	452	535	699	385	561	417	626

The following remarks of Ashby, made with regard to housing in British cities, are closely applicable to conditions in India at the present time. Writing in 1914, he said, 'Bad as the conditions of rural housing frequently are, those of the poorest parts in large towns are generally worse. Our future as a nation depends upon the health, intelligence and skill of the worker; and good health cannot be enjoyed in full measure when housing accommodation is limited or defective. Overcrowding, besides its usual concomitant, lack of cleanliness, also frequently carries with it the further disadvantages of a deficiency in many cases of light and fresh air, owing to the proximity of other houses or of factories and warehouses.'

It is, however, of special importance to us, inasmuch as Cawnpore is one of the foremost of those industrial cities in India which are beginning to have a settled industrial population in the city itself. The appalling results of Cawnpore must be an eye-opener to the town-planner and the health supervisor no less than to the Government itself. Strong measures are needed to wipe out the evil. A wholesale clearance of insanitary and overcrowded slums, preceded by proper suburb-planning for industrial workers, can alone mitigate the present beastly lives of labour.

Examples of Western Cities.—The effects of congestion on infant mortality are the same everywhere. In London and Glasgow, for instance, the more congested and comparatively less-developed boroughs show a considerably higher mortality among the infants than those which have been properly surveyed and cleared up.

The following table indicates the infant mortality rates in some English industrial cities by wards :

CITIES AND WARDS		RATE	CITIES AND WARDS		RATE
LONDON (1921) ¹	..	81	Outer Ring	..	61
Shoreditch	..	111	Harborne	..	42
Kensington	..	107	MANCHESTER (1911) ²		
City of London	..	106	Crumpsal	..	242
Bethnal Green	..	110	Beswick	..	211
Paddington	..	91	Central and Ancots	..	204
Holborn	..	79	St. George's and Ardwick	..	184
Battersea	..	74	Chorlton-upon-Medlock	..	180
Hampstead	..	66	Rusholme	..	110
Woolwich	..	62	Hulm, Bradford and Open-		
Lewisham	..	56	shaw	..	169
Stoke Newington	..	54	Gorton West	..	157
Total County of London	..	81	Newton	..	151
BIRMINGHAM (1922) ³	..	77	Blackley	..	149
Central Ward	..	105	Clayton	..	143
Market Hall	..	117	Meston and Chutham	..	110
Middle Ring	..	77			

It will, however, be clear, from a comparison of the above figures with those of Indian cities given earlier, that the infant mortality rate in the worst wards of Glasgow is almost insignificant as compared to the best quarters in many of the Indian cities.

CLASS OF TENEMENTS	PERCENTAGE TO TOTAL	AVERAGE NUMBER OF PERSONS PER ROOM	INFANT MORTALITY PER 1,000 BIRTHS			
			1921	1924	1926	1927
1 Room	..	70	828.5	557	577	490
2 Rooms	..	14	331.9	313	254	203
3 Rooms	..	7	191.4	271	215	222
4 Rooms and over	..	9	133.3	125	163	195
Roadside	484.8	519	..	..
Hospitals	189.6	134	107	88

¹ *Report of the London County Council on Public Health, 1921.*

² *The New Leader, London, 2nd April, 1923.*

³ H. T. Ashby, *Infant Mortality.*

Congestion and Infantile Deaths.—Coming directly to the subject of the relation of house accommodation to child mortality, it will be interesting to note that the frequency of infantile deaths varies inversely with the number of rooms occupied. A few examples will illustrate the point. The table at the foot of page 106 shows the infant mortality rate by the number of rooms occupied in the city of Bombay from 1921 to 1927.

The following comparative table, showing the relation of overcrowding to infantile mortality in the different boroughs of London, illustrates the same point:¹

BOROUGH	PERCENTAGE OF POPULATION OVERCROWDED IN 1921	POPULATION PER ACRE, 1921	INFANTILE MORTALITY RATE AVERAGE 1914-1923
Finsbury ..	34.0	297	100
Shoreditch ..	32.0	337	122
Stepney ..	29.0	296	94
Bethnal Green ..	27.8	308	105
Southwark ..	23.5	275	101
Hampstead ..	6.5	61	67.8
Lewisham ..	4.7	48	67.7
Stoke Newington ..	8.1	94	73.1
Wandsworth ..	6.8	69	76.9
Woolwich ..	7.8	93	74.8

Preventive Measures.—The tables given above are significant of the close relation that house rent bears to infant welfare. The more the congestion, the higher the mortality, and vice versa. It has, moreover, been found, on examination, that children who survive in these overcrowded conditions grow pale and sickly and have none of the vigour of youth. It cannot be too strongly emphasised, therefore, that the measures likely to succeed in reducing infantile deaths are the clearing of slum areas, the provision of open spaces, better housing, effective sewage, and the prevention of atmospheric pollution; in other words, the provision of the elementary sanitary environment for civilised social life, coupled with a well-ordered system of efficient maternity service. But, as Dr. Rao has said, 'The effective application of remedies is not possible for the individual. It is a communal problem, calling for the intervention of the state.

¹ *Towns and the Land*, Urban Report of the Liberal Land Enquiry Committee, 1923-25.

To save child-life is an axiom of state prevention ; to remedy defect is an axiom of state economy.'¹ Mr. Samuel has also rightly emphasised the same point. He says, 'It is the duty of the community, so far as it can, to relieve motherhood of its burdens, to spread the knowledge of mothercraft that is so often lacking, to make medical aid available when it is needed, and to watch over the health of the infant.'

Effects of Congestion on the Physique of Children.—

It has been estimated that boys living in single-room houses lose about 4·7 inches in height and over 11·7 lb. in weight as compared to those living in four-room houses ; while girls from one-room houses are 14 lb. lighter and 3·3 inches smaller than girls coming from four-room houses.² The effects of overcrowding on physical development are most clearly apparent from Glasgow figures, relating to 72,857 children between the ages of five and eighteen, classified according to the number of rooms occupied by their families :³

		1-ROOM TENEMENTS	2-ROOM TENEMENTS	3-ROOM TENEMENTS	4-ROOM TENEMENTS
Boys—					
Height	..	46·6 in.	43·1 in.	50·0 in.	57·3 in.
Weight	..	52·6 lb.	56·1 lb.	60·6 lb.	64·3 lb.
Girls—					
Height	..	46·3 in.	47·8 in.	49·6 in.	57·6 in.
Weight	..	57·5 lb.	54·8 lb.	59·1 lb.	65·5 lb.

A Vicious Circle.—We must point out, in conclusion, that our treatment of child mortality as being directly connected with house accommodation is not really at variance with the general belief which associates high infantile mortality with poverty, ignorance and malnutrition. In fact, poverty and ignorance themselves encourage overcrowding and insanitation. Dirt and overcrowding, again, bring about mental depression and impaired metabolism, which, in turn, react upon health and lead to impaired efficiency, unemployment and poverty. All this leads not only to a physical waste of energy and general enervation, but also to a low standard of health and low

¹ R. Rao, First Prize Essay for the N. Baby Week Competition, India.

² Scotch Education Blue Book, 1907. ³ Thomson, *Housing Up-to-date*.

resisting power, which play directly into the hands of immorality and disease. Thus the vicious circle continues. More often than not intoxication and other evils add to the irresistible strength and sweep of the vicious circle, and aggravate the effects of poverty and overcrowding.

CHAPTER VIII

CONGESTION AND TUBERCULOSIS

The Effects of a Transition from Rural to Urban Life.

—The conditions of living in the industrial cities present a marked contrast to the free and open-air life in the village. Work, food, shelter, recreation and personal hygiene in the cities are all different from those in the villages, and this reacts unfavourably upon the villagers' normal metabolism. The effects of muscular and nervous fatigue, promoted by long hours of work under artificial conditions, are intensified by deficiency of proper food and absence of real home-life. Indeed, the crowd of pale and gloomy mill-hands, going back to their *chawls* from the factories in the evening in a city like Bombay or Ahmedabad, is a most pathetic scene of human wreckage. Dr. Muthu, whose active work and investigations into the causes and conditions of tuberculosis are well known both in India and in England, has rightly pointed out, in his *Pulmonary Tuberculosis*, that, 'The contact of the East with the West has caused great social, economic, industrial and moral upheavals, as seen in the growth of towns and cities, the expansion of trade and commerce, the depopulation of villages, decay of home industries, migration into towns, high rents and dear food, overcrowding and insanitation, poverty, want, intemperance and degeneration. These have resulted in an insufficiency of light and fresh air, of food and accommodation, of rest and repose of mind, which have lowered the vital powers of the people, and widely opened the door to tuberculosis. . . . The tropical dust and heat ; the debilitating influence of malaria and other fevers ; the hopeless poverty of the millions of Indian poor, who are underfed and overworked ; the joint-family system, which means living in overcrowded and insanitary houses ; the *pardah* system, which secludes women in ill-lighted and ill-ventilated parts of the house ; the custom of early marriage, which undermines the vitality of millions of youths and maidens ; and indiscriminate spitting—all have aggravated the bad conditions and considerably helped to spread the disease.'¹

¹ D. C. Muthu, *Pulmonary Tuberculosis*, pp. 135-36.

Tuberculosis an Old and Universal Scourge.—Tuberculosis is said to be a chronic infectious disease with a bad degree of infectivity. The disease may remain latent in the system for many years. In fact, as Sir Arthur Newsholme has pointed out, 'The case of tuberculosis, like that of leprosy, is governed by the considerations that require intimate and protracted contact for their spread, and that in both diseases there may be prolonged latency before active disease develops.'¹

The disease has been familiar in all ages and to all civilised people. Even at the present time it is widely distributed, so much so that it is reckoned that in Europe almost every human being gets it at one or the other part of his life. It is the most fatal of all the infectious diseases, and is responsible for nearly one-seventh of the world's total mortality. Sutherland, writing in 1908 about the extent of the disease in the United Kingdom, said that it was responsible for one-ninth of the total mortality in the country. 'Pulmonary tuberculosis,' he says, 'claims over fifty thousand victims every year in the United Kingdom, and disables at least one hundred and fifty thousand more; while there are probably over five hundred thousand infected persons, constituting a problem for medical and sanitary consideration. It is the direct cause of one-eleventh of the pauperism in England and Wales, a charge on the state of one million sterling.'²

The following table gives the mortality rates per thousand population from pulmonary tuberculosis in the principal countries of the world in 1920:

Japan ..	..	..	..	1.55
Netherlands ..	..	..	..	1.3
United States of America ..	..	..	..	1.0
England ..	..	..	..	0.9
Australia ..	..	..	..	0.67

A Disease of Civilisation.—More than half of the victims fall in the very height of their manhood and womanhood. When it once gets hold of a person, it invariably ends in a slow and tortuous death. Tuberculosis, like poverty, intemperance and unemployment, is more or less a product of modern industrialism. In fact, it is involved in the social, economic and industrial life of the people. It is,

¹ Sir Arthur Newsholme, K.C.B., M.D., *Public Health and Insurance*, p. 200.

² H. G. Sutherland, *The Control and Eradication of Tuberculosis*, by many authors, p. 5.

in one word, a *disease of civilisation*. Plants, vegetables, animals, and even human beings, in their natural state, are never affected by it. The moment, however, that plants are brought under artificial cultivation, wild animals are deprived of their natural liberty and domesticated to satisfy the whims and caprices of man, and the moment the wild beauties and serene pleasures of nature are discarded by man for the 'golden apple' of power and civilisation, tuberculosis, like many another evil, gets a foothold in him. In short, the farther man goes away from nature, the more does misery surround him. Calmette, a great French researcher on the causes of the diffusion of tuberculosis, also admits the frequency of tuberculosis amongst civilised people, and its rarity amongst savage and nomadic tribes. Matchincoff, Zeimann, Otto Peiper, and other eminent German medical authorities, have added the weight of their vast experience and knowledge to the same theory. Thus, apart from philosophers and idealists, even eminent medical authorities recommend going back to nature for cure and immunity from this fell disease.

Medical Views on the Cause and Spread of Tuberculosis.—It is not our purpose here to discuss, as medical authorities on the subject have done, whether tuberculosis is an infectious disease, caused by the conveyance of the *tubercle bacilli* from one person to another, or is merely a diathesis brought about by poverty, worry and by living in overcrowded and insanitary housing conditions. It is sufficient for our purposes to show that congestion and unhygienic conditions of living are fertile fields for the existence and growth of the disease; and that the absence of such conditions synchronises with a comparative immunity from the same. Dr. Thomson has rightly pointed out that, 'If a further progressive fall in the death-rate from pulmonary tuberculosis is to be obtained, an enlightened and sustained effort must be made to secure improved housing conditions, good food at reasonable cost, and a higher standard of domestic cleanliness.'¹

Although strongly deprecating the theory that open air is a cure for tuberculosis, Dr. Francis Pottinger, one of the greatest tuberculosis experts of the present time, observes, 'The danger of bacterial contamination is much greater in stagnant air than in live air. In the confined air of houses bacteria live for a prolonged period of time, while in the open air, if it has wind movement and direct

¹ H. Hyslop Thomson, M.D., *Tubercle*, January, 1924.

light, they are destroyed much quicker. It is well known,' he continues, 'that patients occupying a small space in crowded and poorly-ventilated rooms have little chance of overcoming tuberculosis. They fail to obtain the stimulating benefit of open air, and consequently the functional capacity of their body cells is low.'¹

Dr. Robert Koch, a bacteriologist of world-wide fame, himself admits the truth of this proposition. Speaking at St. James' Hall, London, on July 23rd, 1901, he said, 'The only main source of infection of tuberculosis is the sputum of consumptive patients, and the measures for the combating of tuberculosis must aim at the prevention of the dangers arising from its diffusion.' If we take the case of a normal working-class family, we find that the whole family have to live in one or two small, ill-ventilated rooms. The patient is left without the nursing he needs, because the able-bodied members of the family must go to their work. How can the necessary cleanliness be secured under such circumstances? Moreover, at night the whole family sleeps crowded together in one small room. However cautious he may be, the sufferer scatters the morbid matter secreted by his diseased lungs, and his relations, close beside him, must inhale this poison. Thus whole families are infected. Often the infection is not confined to a single family, but spreads in densely inhabited tenement houses to the neighbours, and thus, as the admirable investigations of Biggs have shown in the case of the densely populated parts of New York, regular nests or foci of the disease are formed. But if one investigates these matters more thoroughly, one finds that it is not poverty *per se* that favours tuberculosis, but the bad domestic conditions under which the poor everywhere, and especially in big cities, have to live. So it is the crowded dwellings of the poor that we have to regard as the real breeding places of tuberculosis, and it is to the abolition of these conditions that we must first and foremost direct our attention if we wish to attack the evil at its root and to wage war against it with effective weapons. Speaking at the annual meeting of the British Medical Association in 1923, Dr. Charles P. Childe, president of the association, vividly brought home the truth of these observations. He said, 'The breeding ground of this disease, the environment most congenial to its activities, are the sunless, airless, overcrowded and insanitary slum areas of our great cities, where houses are built

¹ F. M. Pottinger, M.D., LL.D., *Clinical Tuberculosis*, Vol. II, p. 246.

forty or more to the acre and stand back to back and side to side like any jigsaw puzzle, so that fresh air and sunlight, the proved destructive agents of the tubercle bacillus, can never enter. . . . Is it a sound economic proposition,' he pertinently asks, 'to equip and maintain, at the cost of millions of the taxpayers' money, sanatoria for the so-called tuberculosis, while we guard intact the very presence of this disease by the exclusion of fresh air and sunlight, which cost nothing, and maintain in our midst a soil which can breed more tuberculosis in a week than all our sanatoria can cure in a year? In overcrowding, confinement, want of air and sunlight,' he continued, 'we have an environment conducive to the development of rickets, either by the supply of conditions favourable to the activities of the virus, whether microbic or otherwise, or by lowering natural resistance to it. Conversely, fresh air and sunlight and good hygienic conditions furnish an environment which is powerfully antagonistic to the disease.'

Some Statistics.—The report of the London tuberculosis dispensaries shows that over one-half of the patients under their care live in dwellings with one or two rooms only. A few statistics will further illustrate the close relation which housing, sanitation and environment bear to tuberculosis. In Edinburgh, when certain insanitary and congested areas were cleared up, and new sanitary and airy houses were built instead in 1914, the death-rate from tuberculosis in the locality fell from 3·8 to 0·4 per thousand inhabitants. Similarly, in Liverpool, the death-rate from tuberculosis fell from 4·0 to 1·9 per thousand when the housing conditions were improved. According to Dr. Marris, 'There was a remarkable fall in the death-rate from tubercle among the natives at Port Elizabeth, in South Africa, due to their removal to a location outside the municipality—a fall from 15·0 to 5·19 per mille.'¹ The committee set up by the Government in England, in 1913, to investigate into the rural and urban life of the people, observes in its report that the excess of mortality from pulmonary diseases and diseases of young children was 40 per cent greater in back-to-back houses than in the ordinary dwelling houses. 'Nothing is more certain,' the report concludes, 'than that the overcrowded and insanitary dwelling house is the home of tuberculosis.'

High Death-rate from Tuberculosis in Towns.—As has

¹ D. P. Marris, *The Control and Eradication of Tuberculosis*, p. 246.

been shown in another place, high rents in the cities compel the poorer people to crowd in small, ill-ventilated houses. Moreover, there are very few open spaces in the cities, and more houses are crammed together in a small area of land in the cities than in the villages. In short, the towns generally suffer both from congestion and congested housing, which prevents even the free passage of air and sunshine—the two great healing forces of nature. Besides, sanitary conditions in the cities, in spite of elaborate arrangements, are generally poor. Accordingly, we find the cities returning very high death-rates from tuberculosis.

The following table gives the death-rates from pulmonary tuberculosis in the principal towns of the world in 1907 :

TOWNS	PHTHISIS RATE	TOWNS	PHTHISIS RATE
Bucharest	4.22	Budapest	3.86
Paris	3.82	Athens	3.26
Vienna	3.26	St. Petersburg ..	3.00
Warsaw	2.44	Leipzig	2.40
Milan	2.31	Stockholm	2.22
Munich	2.82	Christiania	2.79
Madrid	2.70	Moscow	2.60
Tiflis	2.20	Berlin	2.20
Marseilles	2.15	Rome	1.73
Hamburg	1.62	Copenhagen	1.57
Amsterdam	1.42	London	1.45

Congestion in India and in England.—In India especially, where towns have grown up without any check or hindrance, conditions are naturally worse. The sanitary standard as regards conservancy, drainage, disposal of sewage, a clean water-supply and good housing is very low. The housing conditions of even well-to-do classes come short of modern artisan dwellings in England as regards sanitation and ventilation. Overcrowding in principal towns and cities like Ahmedabad, Bombay, etc., is so great, and the house rent so high, that even some of the middle classes and humbler Anglo-Indians are glad to live in cheap lodgings and tenement blocks. So dense is the population in some of the places that in parts of Cawnpore 563 persons are crowded in one acre, and in Bombay 638 ; while in the worst parts of a city like Leeds it is only 104, and in Birmingham 101. Under the joint-family system, the growing families under the same roof find the accommodation more and

more limited, and the sanitary arrangements become more and more inadequate; while the inner parts of the house, where the *purdah* women reside, become deficient in light and fresh air. No wonder that in many cities more than twice as many women as men die of consumption.

Tuberculosis Mortality.—The appalling extent of the scourge of tuberculosis in India will be significant from the fact that the annual mortality from this fell disease in India exceeds the combined populations of Bombay and Calcutta. 'My extensive tour from Bombay to Burma one way, and from Nepal to the Nilgiris in another,' observed Dr. Muthu to a press representative during his recent tour in India, 'has convinced me that tuberculosis is increasing in many parts of India, especially in presidency capitals, great industrial and commercial centres and the large towns, and it appears also to be extending to the rural areas. From calculations, I found that in many Indian cities, out of every three deaths recorded among the adults, one dies of consumption.'

The following table gives the tuberculosis mortality rates in the urban and rural parts of the chief provinces in 1927 :

PROVINCE	TUBERCULOSIS MORTALITY RATE	
	In Urban Parts	In Rural Areas
Bengal	1.2	.1
Bombay	1.75	.93
United Provinces	1.83	.01

The bigger industrial and commercial towns, which attract a large and growing number of people from the surrounding country to work in the increasing number of factories, workshops and other subsidiary occupations, are generally the most overcrowded and insanitary. A study of vital statistics shows that the mortality rate from tuberculosis in the industrial cities is very high indeed.

The table at the head of page 117 gives the death-rates per mille from tuberculosis in the principal towns of India and in British boroughs in 1927.

Relation of Congestion to Tuberculosis.—This, however, is not all. The association of a high death-rate from tuberculosis with congestion and insanitation may be pursued further

INDIAN CITIES			RATE	BRITISH BOROUGHES			RATE
Bombay	..	..	1.36	Birmingham	..	..	1.08
Karachi	..	..	2.36	Liverpool	..	..	1.38
Madras	..	..	3.3	Manchester	..	..	1.41
Calcutta	..	..	2.5	Newcastle	..	..	1.39
Cawnpore	..	..	5.05	Sheffield	..	..	.89
Rangoon	..	..	2.61	London City	..	..	1.05
Ahmedabad	..	..	3.80				
Poona	..	..	3.67				
Lucknow	..	..	4.34				

still. Dr. R. W. Phillip, after a long experience and careful study of tuberculosis in England and the Continent, said that facts and statistics have speedily accumulated, which go to show that tuberculosis results chiefly from the exclusion or insufficient supply of fresh air in the dwelling room, work-room and other haunts of man; and, further, that in proportion as the supply of air and sunlight is improved under better conditions of sanitation, there follows a corresponding reduction in the mortality rate from tuberculosis. A study of tuberculosis death-rates by wards in the principal cities shows that the more congested and insanitary quarters suffer from a considerably higher mortality than the others. So much so that it appears that the disease has come to stay in some of those areas which might properly be called slums. Indeed, tuberculosis has been defying all medical skill in the crowded *bastis* of industrial labourers and other poor folk. In fact, no amount of medical attendance can keep in normal health a man who works all day without a break, and comes home only to be surrounded by all sorts of family cares and anxieties. In the case of an ordinary labourer in an industrial town in India, this is not all. He has to put up in a dark, stuffy den, stinking from all sides, where there is neither privacy nor any other relieving feature to console his depressed soul and tired body. Tuberculosis easily flourishes under such conditions, and claims a very large number of victims.

Defects in the Collection of Tuberculosis Statistics.—The tables given in Appendix IV clearly indicate the close relation of tuberculosis to slum life.

The figures are not quite reliable, because the agency which keeps the records is very imperfect. In many cases reliance has to be

placed on the reports of sweepers and municipal peons, with whom tuberculosis passes merely for fever. Even in 1923 the percentage of certified deaths to total deaths in Bombay was only 25, including the certificates of private practitioners, *hakims*, *vaidyas*, police and the coroner. The sharp difference between the figures for 1923 and the mean for the previous decade must, accordingly, be accepted with great reservation. The sudden fall in tuberculosis mortality in Chukla, Second Nagpada, Kamathipura, Esplanade, Fort South and Upper Colaba, which include some very congested and insanitary areas, is more or less fictitious. But, imperfect as the figures are, they present a gruesome picture; and, when we remember that the figures err materially on the side of moderation, we can very well imagine the conditions under which our mill-hands live in Bombay and other industrial cities.

The Steady Increase of Tuberculosis Mortality in India.—It is remarkable that, whereas the mortality from most of the other diseases has been showing a more or less uniform tendency to decline, however slowly, the death-rate from tuberculosis has been showing large increases. The following black list, taken from the Calcutta municipal reports, is significant :

DEATH-RATE PER THOUSAND FROM
TUBERCULOSIS BY WARDS

WARDS	1919	1921	1923	1925	1926	1927
Benispoker	2.5	4.5	4.0	3.7	2.9	2.6
Ballygunj	2.1	1.3	1.7	2.6	1.9	2.1
Colootoliah	2.4	3.7	2.6	2.4	2.3	3.1
Jorabagan	2.4	2.9	2.6	2.0	2.6	2.8
Bohwanipur	1.9	2.1	2.2	1.8	2.3	2.8
Jorasanko	2.7	2.6	2.3	2.3	3.6	3.3
Entally	2.3	3.4	2.3	4.8	3.8	4.1
Calcutta City	2.1	2.4	2.3	2.4	2.7	2.5

The persistent rise in the number of deaths from tuberculosis shows the same uniformity in almost all industrial towns in India.

The Eradication of Tuberculosis in England.—In England and America, however, the growth of the garden city movement, the constant improvement of sanitation, the persistent clearance of slum areas, and the establishment of tuberculosis dispensaries and sanatoria have steadily reduced tuberculosis mortality.

The following table shows the mortality rates per 1,000 population from tuberculosis in England and Wales since 1853 :

YEAR	DEATH-RATE	YEAR	DEATH-RATE
1853	3.84	1922	1.11
1888	2.55	1923	1.05
1891	2.33	1924	1.04
1901	1.81	1925	1.02
1911	1.45	1926	.94
1921	1.12	1927	.95

In the cities the fall has been even greater. The following table gives the mortality rates from pulmonary tuberculosis in three great cities since the outbreak of the War :

YEAR	LONDON		BELFAST		TOKIO	
	Males	Females	Males	Females	Males	Females
1914	1.84	1.01	1.67	1.88	3.03	3.27
1915	1.92	1.11	1.80	2.28	3.87	3.03
1916	1.88	1.05	2.00	2.25	2.91	3.03
1917	2.01	1.14	2.31	2.56	3.72	2.98
1918	1.99	1.24	2.26	2.90	3.01	3.24
1919	1.47	.98	1.67	2.24	2.86	3.09
1920	1.29	.82	1.45	1.99	2.37	2.63
1921	1.32	.85	1.38	1.75	2.15	2.22
1922	1.35	.84	1.60	1.54	..	..
1923	1.23	.75	..	..	..	..

The slight rise in 1916-18 in all the cities can be traced to the effects of the War. The high rate among women in Tokio and, to a smaller extent, in Belfast is due mostly to the industrial employment of women. The continuous and systematic fall in the mortality rate is, however, equally prominent in all the cities.

Tuberculosis in America.—In America the war against tuberculosis has succeeded in reducing the mortality from this disease to almost one-fifth in about fifty years. The progressive fall in the mortality rate in the city of New York, one of the most overcrowded cities of the New World, is given on page 120.

Mortality in Indian Cities.—Indian cities, on the contrary, show practically no improvement in the mortality rates from tuberculosis. The following table gives the number of registered

deaths from tuberculosis and the death-rates per mille in the principal industrial and commercial cities in India since 1913 :

YEAR	BOMBAY		CALCUTTA		RANGOON		CAWNPORE		AHMEDA- BAD		LUCKNOW		MADRAS	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1913	2,152	2.2	2,196	2.4	..	..	..	..	..	..	..	..	481	.9
1914	1,889	1.9	2,137	2.3	..	..	..	..	..	..	..	..	738	1.4
1915	1,710	1.7	1,920	2.1	..	..	..	..	..	..	..	..	759	1.4
1916	1,902	1.9	1,738	1.9	..	..	..	..	..	..	..	..	876	1.6
1917	2,118	2.2	1,539	1.7	644	1.9	..	..	..	..	..	..	1,067	2.1
1918	2,513	2.6	1,826	2.0	703	2.1	..	..	..	5.9	..	..	1,488	2.9
1919	2,780	2.8	1,889	2.1	816	2.4	..	..	1,340	4.9	..	..	1,309	2.6
1920	1,841	1.9	2,120	2.3	801	2.4	..	..	891	3.3	1,075	4.6	997	1.9
1921	1,614	1.4	2,208	2.4	856	2.5	447	2.1	857	3.2	960	4.5	957	1.8
1922	1,473	1.2	2,216	2.4	994	2.8	412	2.1	1,019	3.7	943	2.3	1,088	2.1
1923	1,371	1.1	2,089	2.3	..	2.6	635	3.3	919	3.4	982	4.5	1,268	2.4
1924	1,568	1.7	2,232	2.5	..	2.8	..	3.6	..	3.5	..	4.7	1,468	2.9
1925	1,404	1.1	2,586	2.4	1,118	3.4	842	4.3	1,049	3.7	910	4.2	1,604	2.9
1926	1,755	1.4	2,871	2.7	1,023	3.2	920	4.7	1,110	4.5	1,000	4.6	1,538	2.6
1927	1,557	1.4	2,725	2.5	901	2.6	986	5.1	1,029	3.8	943	4.3	1,781	3.1

The Fall in Bombay.—The increased vigilance of the municipal and other local authorities in Bombay city towards the housing and sanitary conditions of the city since the close of the War are being richly rewarded by a gradual but continuous reduction in the waste of human life in that city ; but the other centres of trade and industry are not showing the same welcome signs. In fact, we are face to face with an unabating and, in several cases, even an increasing mortality rate from this disease. It is important to note that in other Indian cities there is not only no improvement in the mortality rates from tuberculosis, but also that the women are generally more susceptible to the disease than men.

TUBERCULOSIS MORTALITY IN NEW YORK

YEAR						DEATH-RATE PER MILLE	
						Males	Females
1868	..	..	..	..	..	5.9	4.9
1910	..	..	..	..	..	2.7	1.6
1920	..	..	..	..	..	1.5	1.0
1921	..	..	..	..	..	1.2	.8
1926	..	..	..	..	..	1.1	1.8
1927	..	..	..	..	..	1.0	2.0

The following table, which gives the mortality rates from tuberculosis among males and females by wards in Cawnpore, is very illuminating in this connection:

CAWNPORE	1923		1924		1925	
	Males	Females	Males	Females	Males	Females
Gwaltoli ..	2.7	3.1	3.1	4.4	3.4	5.5
Bengali Mahal ..	.5	6.3	1.6	6.3	1.1	4.7
Anwar-gunj ..	2.1	4.8	1.8	4.6	1.1	5.9
Purva Hiranjan ..	4.3	8.8	2.9	8.0	2.9	8.8
Sisamai ..	3.0	3.6	2.4	4.7	3.4	5.8
Colonelgunj ..	1.3	3.1	1.8	3.6	1.6	4.5

Tuberculosis by Sex and Age.—The figures tell a most depressing tale. The *mahals* selected are particularly congested quarters, where most of the poor labourers and the low-class people reside. The figures indicate that the mortality from tuberculosis in these places is as high as the total from all causes and in all ages in the United Kingdom or the United States of America, and that over two-thirds of the victims of this fell disease are women. This fact throws a flood of light on the whole problem. The women in Indian cities are relegated to the innermost apartments of the house, thanks to the *purdah* system, and get very few opportunities of breathing in the open air. The effects of housing conditions in their case, therefore, get time for full play. The men have the privilege of getting open air and sunshine at least on their way to and from their work, while the women are frequently denied even that opportunity. To add to this, they have to spend a great deal of their time in the dense smoke and suffocating atmosphere of the kitchen, whereas the factories in which men work have to conform to certain rules of light and ventilation, according to the Indian Factory Acts. In short, the effects of congestion and environment are decidedly greater on the women than on the men, and the mortality rates from tuberculosis once more faithfully reflect their natural connection. Moreover, tuberculosis affects people in the height of their manhood and womanhood. It rarely affects a man after fifty, and still less before ten.

The following table gives the actual number of recorded deaths from tuberculosis in Bombay and Calcutta in the various age-groups in 1926:

AGE-GROUPS	TOTAL NUMBER OF DEATHS REGISTERED			
	BOMBAY		CALCUTTA	
	Males	Females	Males	Females
Under 10 years	29	41	19	27
10 to 20 years	65	163	120	236
20 to 30 years	275	301	376	432
30 to 40 years	301	203	319	265
40 to 50 years	169	75	241	132
50 and over	90	43	183	84
All ages	929	826	1,258	1,176

Greater Incidence among Women and Young Men.—

Thus the incidence of this fell disease falls mainly on those in the prime of their life, and more especially on girls and young women. 'For every boy or young man that dies of tuberculosis,' remarks the health officer of Calcutta, 'between four and five girls and young women die of this veritable "white plague."' Referring to the causes, he says, 'One of the prime causes of tuberculosis is bad housing. In the case of females, owing to the *purdah* system, it is not merely bad housing; it is more or less strict seclusion in the innermost rooms of insanitary houses. This is inevitable where the *purdah* system is retained in a congested city.' And it is not only retained in cities, but appears in its worst forms only there. Continuing, he observes, 'It is difficult to secure absolute privacy in narrow streets and *gullies* without light and air. The *zenana* is almost invariably in the inner portion of the house, ill-lighted and ill-ventilated, but effectively screened against observation. The other great factor in the case of females is early marriage, which subjects immature girls to the strain of repeated pregnancies and prolonged periods of lactation.'

Opposite Tendency in Rangoon.—In Rangoon, however, we find a rather opposite tendency. Although the mortality rate from tuberculosis here is as high as in any other big industrial or commercial city in India, the mortality rate among females is not higher than among males. In fact, it appears from the statistics, supplied by the municipal report of Rangoon for the year 1923-24, that the mortality rate from this disease has been higher among the males as compared to the females ever since 1919.

The following table gives the tuberculosis mortality rates in Rangoon by sexes since 1917:

YEAR	MALES	FEMALES
1917	2.48	2.99
1918	2.57	2.86
1919	3.20	2.99
1920	3.20	2.97
1921	2.75	2.52
1922	3.07	3.03

The Indoor Habits of the Burmese.—The explanation of this opposite tendency is the small number of females as compared to males in Rangoon, and the fact that there is no *purdah* system in Rangoon and Burma as a whole. On the other hand, it is the men, rather than the women, who live more indoors and become addicted to drugs and filthy habits. Moreover, the Burmese woman, on an average, is more particular about the cleanliness and surroundings of her house than any other female, and prefers to go back to her country-house or to the suburbs rather than reconcile herself to the filthy conditions of urban *chawls* and *bastis*. In spite of this natural abhorrence to slum-life, inborn in the Burmese, the growth of the city has continued by the increasing number of immigrants. Thus congestion has increased, and with it a steady increase in tuberculosis mortality, as is evident from the above table.

But we have even more direct evidence to prove the intimate connection of tuberculosis with bad housing conditions than has been hitherto advanced. It is found that the mortality rate from tuberculosis, like the infant mortality rate, varies inversely with the number of rooms occupied.

The following table gives the death-rates from tuberculosis in different types of dwellings in some of the important industrial cities of Great Britain:

NAMES OF CITIES	DEATH-RATES PER MILLE OF POPULATION			
	1 Room	2 Rooms	3 Rooms	4 Rooms and over
Greenwich (1913) ..	222	179	106	87
Glasgow (1913) ..	240	180	120	70
Edinburgh (1910-12) ..	225	146	111	56
Dundee ..	744	640	552	320

Effects of Sunshine and Air.—The close relation of house accommodation to tuberculosis cannot be better illustrated. Tuberculosis mortality seems to move onwards, like the hands of a clock, with the pressure of house accommodation. Writing on the comparatively low death-rates from tuberculosis in South Australia, Ernest Good says, 'The abundance of sunshine, in conjunction with the comparative absence of overcrowding in the cities, is probably the reason why the death-rate from pulmonary tuberculosis in South Australia in 1907 was only 97 per 100,000 living, although tuberculosis is still by far the largest factor in the death-rate, killing more than all the other infectious diseases put together.'¹ Captain Grieg, writing as early as 1908, says that the disease is twice as common among the population living in huts as among those living in well-built houses in Calcutta, and maintains that there is a definite relation between density, uncleanness and want of fresh air, and tuberculosis. He ends with the significant statement of fact that, 'In the crowded *zenanas*, with insufficient air and light, tuberculosis is rife amongst the Muhammadan women.'²

Industrialism and Tuberculosis.—In the end we might mention that industrialism promotes tuberculosis in other ways also. Fatigue is an important factor in every disease. Still, a humid condition of the atmosphere itself favours tuberculosis, but it affects the tired and the worried man most readily. The dark and dingy rooms, void of all open space, and the stinking atmosphere, surcharged with dirt and squalor, which is common in the average labourer's dwelling in Indian cities, offer a fertile field for the spread of tuberculosis. But when such drab conditions are coupled with fatigue and worry, tuberculosis plays havoc. The association of fatigue with tuberculosis is seen clearly in the mortality rates from this disease among women in England during the period of the Great War. During the period of the War, women had generally to replace men in the industries. That affected the total mortality from tuberculosis among women to a very great extent.

The table at the head of the next page gives the index numbers of the mortality rates from tuberculosis (phthisis) among women in England, taking the pre-War year 1913 as the standard.³

¹ Ernest Good, *The Control and Eradication of Tuberculosis*, p. 241.

² E. D. W. Greig, I.M.S., *The Control and Eradication of Tuberculosis*, pp. 253-54.

³ Collis and Greenwood, *The Health of the Industrial Wage-earner*.

YEARS	AGE-PERIODS			
	15 to 20	20 to 25	25 to 35	35 to 45
1913	100	100	100	100
1917	150	131	113	114
1919	130	120	103	94

Illustrations from the War.—It is clear from the above table that in 1917, when women had generally to take the place of men in industries, in order to spare men for harder work on the battlefields, the mortality rates from tuberculosis suddenly rose; and in 1919, that is, as soon as they were relieved from industries and hard work by men, after the cessation of hostilities in 1918, the rate returned very near to its old level. It will be noticed, further, that the effect has been most dramatic in the age-group 15 to 25, the age at which women are most capable of hard work and at which most of them must have taken to industrial work during the War.

It is, again, noteworthy that the proportion of the mortality from this disease to total deaths in big cities in England rose from 35 per cent in 1913 to 42 per cent in 1916. This has also been attributed by Collis and Greenwood to the accumulation of workers in big cities for purposes of war. Sir Arthur Newsholme also observes in the same connection that, 'A serious penalty of war conditions has been the increase of tuberculosis. It is not surprising that the crowding in barracks, the overwork and overstrain, the dirtier habits and risks from expectoration in massed communities, should have increased tuberculosis among soldiers, both by activating latent tuberculosis and by introducing new infection. Nor is it surprising that under analogous conditions tuberculosis has increased among women, especially at the ages in which the enormous increase in their industrial employment has taken place.'¹

Textiles and Tuberculosis.—The example of the West is a good object-lesson for us. Long and continuous hours of labour in the fibre-laden atmosphere of the textile mills impair the respiratory system very seriously. Fine filament particles, found floating in the air in jute or cotton mills, gain entrance into the lungs and induce chronic irritation and predisposition to germ infection. The inhalation of mineral dust raised in factories and mines gives rise to

¹ Sir Arthur Newsholme, *Public Health and Insurance*, p. 129.

metallic poisoning. Moreover, industries are generally carried on in closed places, where hot steam is constantly present, and therefore the workers are exposed to sudden changes of temperature in going in and out of the factories, which weakens their lungs. Accordingly, we find tuberculosis associated more with the cotton and jute industry than with others. An average cotton mill in India is not equipped with all the modern devices to clear and renovate the still and suffocating atmosphere of the spinning, weaving and other rooms by means of exhaust fans, etc. A man unused to the atmosphere will feel uneasy and suffocating within an hour in the spinning or carding department of the best mill in India. Indian workmen have to spend no less than ten hours every day in such rooms; so much so, that in the latter part of the day a labourer can be seen covered with a thin layer of cotton all over. To add to this, as has been pointed out before, he has to put up with the most unwholesome surroundings in the *chawls*, where he passes the night. There is no wonder, therefore, that the closely-built *chawls* of Bombay, the rows of underground cells in Ahmedabad, the inner *bastis* and *zenanas* of Calcutta, Lucknow, Cawnpore and Howrah, the crowded hovels of the jute mill villages, the filthy *dhauras* of the coal-mines and the dingy huts of the industrial towns in Madras have all become regular nests of tuberculosis and other respiratory diseases.

CHAPTER IX

VITAL STATISTICS IN VILLAGE AND CITY

Doubtful Character of the Figures.—The cumulative effect of the various factors of health on the progress and vitality of a people is most vividly illustrated by the variations of the birth- and death-rates. The accuracy of the Indian census figures is, however, very doubtful, as the census authorities of 1921 admit and as the Commissioner of Public Health reiterates. According to Marten, the probable error from this source in the rural areas varies up to about 20 per cent in the recorded number of births and deaths. As is but natural, the record of births is less accurate than that of deaths. In spite of the fact that in municipal towns the registration of births and deaths by the householder is generally compulsory, the standard of accuracy is not as high in the towns as in the villages, although there is a progressive improvement. Leaving aside the probable errors in the recording of vital statistics as insignificant and immaterial for estimating general tendencies and for making broad comparisons, we find that the incidence of mortality from the several diseases is uniformly and decidedly greater in the bigger industrial towns than in the rural tracts. The mischievous influence of modern industrialism on national health is, however, collateral with that of urbanisation.

Industrial Life and Mortality.—‘Urbanisation,’ observes Professor Chapman, ‘with its congestion of population and smoke, has doubtless reduced the physical vitality of the population; and industrialism has directly helped this retrogression by rendering nervous strain more acute and by limiting the possibilities of the open air life.’¹ Dr. Louis I. Dublin, who has considerable experience regarding mortality statistics of New York, points out that there is a difference of about eight years in the expectation of life of industrial and non-industrial workers. He further calculates that tuberculosis and pneumonia are about twice as high among industrial workers as among others.² That industrialism, with its urban conditions, is the main cause of our relatively high mortality rates is borne out by a comparison of urban and rural death-rates.

¹ S. J. Chapman, *Work and Wages*, Vol. III, p. 111.

² *Monthly Labour Review*, Washington, January, 1925.

The following table gives the birth- and death-rates per mille (per 1,000 of population) in the urban and rural parts of the different provinces of India in 1927 :¹

PROVINCES	BIRTH-RATE	DEATH-RATE		TOTAL
		IN URBAN PARTS	IN RURAL PARTS	
Delhi	40.53	30.22	30.48	30.32
Bengal	27.7	25.9	25.5	25.6
Bihar and Orissa ..	37.6	22.7	25.1	25.1
Assam	30.25	23.68	23.46	23.47
United Provinces ..	36.72	35.37	21.68	22.59
Punjab	42.3	29.19	27.26	27.46
N.-W.F.P.	29.3	24.34	21.79	22.05
C.P. and Berar ..	45.58	32.53	31.17	31.31
Madras	36.5	27.8	23.8	24.3
Coorg	19.17	62.21	29.6	31.36
Bombay	36.85	26.65	25.49	25.72
Burma	25.08	36.21	17.38	19.55
Ajmer-Merwara ..	30.46	Not available		26.18
Total British India ..	35.27	29.03	24.48	24.89

Mortality in Urban and Rural Areas.—An important feature of the foregoing table is the difference between the death-rates in the towns and the rural districts. It shows that the urban death-rate has been greater than the rural and the total death-rates in almost every important province in India. Bengal, Bihar and Orissa, and Assam are predominantly agricultural provinces, and the few towns which exist there do not show any marked tendency towards overcrowding on account of the comparative backwardness of industrial growth; while the tea plantations of Assam, and the coal and iron mines of Bihar and Orissa, do not involve the concentration of any large number of people at a particular place. In fact, the majority to the labourers live in their own homes in the rural villages, near and round about the works, and treat mining, tea gardening or other industrial work as more or less a supplementary occupation to agriculture. Accordingly, the slight preponderance of rural death-rates over the so-called urban rates in Bihar and Orissa does not signify anything. In Bengal, moreover, industry is confined to Calcutta and its suburbs, and a small chain of jute mill villages along the Hooghly. The majority of the other towns and cities included in urban territory in the census report

¹ *Report of the Public Health Commissioner with the Government of India, 1927.*

are merely outgrown villages and have absolutely no affinity to the industrial and commercial towns that we find elsewhere. Thus a comparison of the urban and rural death-rates in Bengal is rather misleading. The real comparison is between Bengal and Calcutta. Death-rate in the latter was 33·3, as against 25·6 in the former, in 1927.

A Comparison with Other Countries.—It would be interesting at this place to compare the birth- and death-rates of other countries with India.

The following table indicates the ratio of births and deaths to 1,000 of population in the principal countries of the world in 1927 :

COUNTRY	BIRTH-RATE	DEATH-RATE
England ..	16·6	12·3
United States ..	20·4	11·4
Germany ..	18·9	12·6
France ..	18·2	16·5
Japan ..	32·3	19·01
India ..	35·3	24·9
Australia ..	21·7	9·5
Egypt ..	42·7	24·5

Thus India has the unenviable position of a country whose death-rate beats the record of all the principal nations of the world, and is more than double the rate prevailing in England and the United States of America. If we remember also the fact that the vital statistics in India lack much to be desired in accuracy, and if it is true, as has been discovered by Dr. Brahmachari in his report on the accuracy of registration in Bengal—that the actual birth- and death-rates in Bengal are 50 per cent greater than the recorded rates—the ghastly significance of the figures becomes more apparent.

Growth of Industrialism and Urban Life.—In India as a whole, the population, during the last two or three decades, has steadily flocked to the growing industrial and commercial cities and the mill and mining towns from the rural districts. Factories have taken the place of green fields and open spaces; rows of gloomy *chavels* and barracks have replaced the country cottages and detached dwelling houses; we have dust, smoke and noise instead of sunshine and country air; bustle and excitement instead of the comparatively quiet communal life of the village; and this change

has, above all, been associated with an almost unlimited inter-communication of human beings, and a corresponding increase in the opportunities for the spread of germs of disease. In the old village economy, when locomotion was slow and tedious, disease travelled by slow and deliberate stages. Now the infection of the entire world may be sampled in any one district in the course of a few weeks. The history of influenza and dengue fever in recent years bears eloquent testimony to the above statement. The difficulties of water-supply, of scavenging, and of drainage have made towns the inevitable destroyers of mankind. The conditions of housing are worse in towns than in country districts, higher rents and less ground space implying that each family on an average lives in fewer and more crowded rooms than in country districts. In fact, public health work has become an urgent necessity dating from the time when men began to huddle in towns. To-day the results of overcrowding, of contaminated water-supplies, of intensive and widespread infection, are seen in devastating epidemic and endemic diseases. Poverty, squalor, dirt and their consequences are rampant in the towns, where underfed workmen fall easy victims to various kinds of infection. Thus cholera in 1900, and again in 1905-06, plague in 1911, and influenza in 1918-19, have each levied a higher toll on the man-power of the country than the Great European War, during the four years of its destructive work, did of all the belligerents put together.

Bad Housing and Mortality.—The intimate connection between health and housing can be realised from the fact that the death-rate in Oldham Road area, in Manchester, was 49·2 per mille, but after a clearance and re-housing scheme had been carried out it fell to 29·7. In Pollard Street area, in the same city, the fall had been from 51·4 to 32·7. Similarly, in Liverpool, in 1902, the death-rate stood between 40 to 60 per mille. The medical health officer points out that under the new conditions, after the clearance of slum areas, the death-rate has fallen by more than half. Says the health officer: 'There has been a marked development in the habits and cleanliness of the people who formerly inhabited these dwellings, as indicated by the external and internal appearance of the houses. The improvement is particularly noticeable in the children, and at night the districts are quiet and orderly.'¹

¹ *Forty-second Report of the Local Government Board, Part II, pp. xxii-xxiii.*

More Deaths than Births in Indian Towns.—It is very unfortunate to note that in most of the industrial towns in India the death-rate is higher than the birth-rate. The fact that, in spite of this opposite tendency, the population of the cities has not only been kept up but uniformly increased year by year, and decade by decade, is accounted for by the continuous stream of immigrants from the surrounding country into the city, to find work in the factories or for purposes of commerce and trade. A continuous upper hand of deaths over births, therefore, shows that some of the immigrants come to the cities only to die, while others return to their places with less of vigour and energy than when they came to them.

The following figures indicate the death-rates and birth-rates in the principal towns in India in 1927 :

TOWNS	BIRTH-RATE	DEATH-RATE	IMMIGRANTS PER 1,000 POP.
Calcutta city	15.5	34.2	710
Bombay city	18.54	23.84	800
Madras city	47.1	42.7	333
Rangoon city	19.49	31.41	600
Karachi city	51.33	29.50	600
Cawnpore city	39.53	41.19	477
Poona city	19.38	41.25	396
Ahmedabad city	42.78	40.17	400
Nagpur city	58.47	42.50	258

The Town Diseases.—Over and above the high general death-rates in the cities, there are some diseases whose virulence might be directly attributed to overcrowded and insanitary conditions of living, and which may accordingly be more appropriately termed as *town diseases*. Tuberculosis particularly, and respiratory diseases in general, affect weak and tired men most easily. The overworked and underfed labourers, residing in stuffy dwellings, deprived of fresh air and sunshine, and living on poor and insufficient food, show an impaired metabolism and respiration, and deficiency in powers of resistance. They, therefore, easily catch the infection, and fall a prey to tuberculosis, bronchitis and pneumonia.

The table at the top of page 132 gives the incidence of deaths from the principal town diseases in the provinces of India, both in urban and rural parts, in the year 1927.

Greater Mortality in Urban Areas.—In every province the death-rate from these diseases in the urban areas is several times

RATIO OF DEATHS PER 1,000 OF THE POPULATION

PROVINCES	RESPIRATORY DISEASES		DYSENTERY AND DIARRHOEA		TUBERCULOSIS		PNEUMONIA	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Bengal ..	5.3	.4	3.0	.5	1.2	.1	2.30	.15
Bombay ..	7.98	3.77	1.33	1.33	1.75	.93	3.30	.39
United Prov.	6.95	.19	2.14	.13	1.83	.01	1.91	.01
Madras ..	3.6	1.7	2.9	1.6	1.37	.61	.86	.38
Burma ..	7.0	.25	2.47	.54	1.89	..	2.75	..

greater than the death-rate in rural parts. The incidence of deaths from these diseases in the rural parts of the Bombay presidency, although it is less than half as compared with the urban areas, is much greater than in the other provinces. This is accounted for by the fact that a large number of villages round Bombay city and Ahmedabad—being the recruiting ground for the industries of the two cities—get the infection from the incoming workmen, and accordingly return very high mortalities and help to raise the death-rates. Thus the mortality from tuberculosis in Colaba and Ratnagiri, two villages near Bombay, from where the local industries draw most of their labour force, was 1.49 and 2.53 per thousand in 1922. Again, the rate in Ahmedabad, Surat and Kaira districts (rural parts only) was 1.42, 1.0 and 1.46 respectively. Looking into the statistics for the principal industrial cities, we find that they bring out still higher rates.

The following figures indicate the mortality in the principal towns in 1927 :

RATIO OF DEATHS PER 1,000 OF POPULATION

TOWNS	RESPIRATORY DISEASES	TUBERCULOSIS	PNEUMONIA	DYSENTERY AND DIARRHOEA
Bombay city ..	11.65	1.36	6.5	1.26
Calcutta ..	10.3	2.5	3.9	3.6
Madras ..	12.5	3.1	..	6.2
Rangoon ..	10.65	2.61	4.71	3.01
Cawnpore ..	12.22	5.05	3.06	1.5
Lucknow ..	13.60	4.34	5.72	1.79
Poona ..	15.16	3.67	5.72	2.46
Howrah ..	10.1	1.0	7.00	6.5
Karachi ..	10.30	2.36	4.6	2.08
Ahmedabad ..	19.50	3.80	5.04	1.51

Effects of the Purdah System.—The causes of tuberculosis and respiratory diseases lie in ignorance and poverty. The *purdah* system, which deprives the *zenana* ladies of sufficient air and sunshine, and confines them to the stuffy atmosphere of the innermost apartments, also helps to swell the death-rate amongst ladies. But more than all this do bad housing conditions contribute to raise the rate. The gross overcrowding and insanitary environment of our industrial towns offer a good field for the infection to spread its deadly influence.

The effects of insanitation and congestion on the incidence of deaths from these diseases become much more pronounced when we study the death-rate by wards in the chief industrial cities. (*Vide* Appendix V.)

Service Privies and Defective Water-supply.—The heavy incidence of diarrhoea and dysentery in the suburban wards and other labour quarters can be attributed to the numerous service privies, with foul air and accumulated faecal matter in their vicinity, no less than to defective water-supply. The incidence of respiratory diseases again is greatly influenced by the fact that the poor *basti* dweller, ill clad and poorly fed, living in a damp hut, which is a poor protection against changes of temperature, is particularly susceptible. Overcrowding and defective ventilation, moreover, play an important part, especially in the cold weather, when an unreasoning dread of night-air leads to the shutting up of all openings for air.

Effects of Social Customs on Expectant Mothers.—The effects of congested housing conditions, coupled with dirty surroundings, on the lives of infants have already been dealt with in a separate chapter. Their effects on the wide prevalence of tubercular diseases have also been similarly treated at some length. Another important field, which has remained unexplored by all public health authorities till very recently, and where insanitation and overcrowding have been playing havoc, is that of ignorant and superstitious mothers at the time of confinement. In India, as a rule, expectant women are allotted the worst part of the house, generally near the latrine, because of the superstition that the confined woman remains untouchable till after the necessary baths and religious rites have been performed. In big cities, where a damp and dingy room is the sole possession of an ordinary working-class family, the adolescent mother has to content herself with a dark corner, in the midst of dense smoke and other impurities.

In a city like Bombay, where several poor families have sometimes to put up in a single room, the lot of the mothers can better be imagined than described.

Dirty and Ignorant Midwifery.—To the filthy surroundings and the impure atmosphere is frequently added unclean and ignorant midwifery. The Public Health Commissioner, in his report for 1920, has given a very realistic picture of the indigenous *dais*, who generally belong to the lowest castes. 'Clothed in voluminous, dirty garments, their arms are decorated with innumerable glass bangles; their fingers, covered with shoddy rings, end in dirty finger-nails. Their apparatus consists chiefly of a large tobacco pipe, of the *hookah* variety, a dirty old knife, and a small oil lamp, the oil of which serves indiscriminately both for burning and oiling the hands for vaginal examination. A few scraps of rags or old wool, pulled out of a mattress, and some string completes the outfit.'¹ Every word of the above is corroborated by facts of daily occurrence even in cities and among educated classes, to say nothing of the outlying districts and the country people. Little wonder, therefore, that quite a large number of Indian women, feeble as they become by constantly

PROVINCES AND CITIES	MATERNAL DEATH-RATE PER 1,000 BIRTHS	PROVINCES AND CITIES	MATERNAL DEATH-RATE PER 1,000 BIRTHS
UNITED PROVINCES :		C.P. :	
Rural areas	41	Rural areas	4.3
All towns	6.3	All towns	7.6
Cawnpore	6.4	Nagpur	6.5
Muttra	10.0	Jubbulpore	12.3
Hathras	10.5	MADRAS :	
ASSAM :		Rural areas	4.5
All towns	24.7	All towns	10.8
Sylhet	62.1	Madras city	12.0
BOMBAY :		Tiruvallur	50.6
Rural areas	4.8	Guntur	32.2
All towns	8.7	BENGAL :	
Ahmedabad	11.1	Rural areas	
Poona	16.3	All towns	
Bombay	5.0	Calcutta	6.2
Rohri	45.6	BURMA :	
		All towns	9.0
		Rangoon	2.2
		Prome	30.8
		Toungoo	37.8

¹ *Report of the Public Health Commissioner with the Government of India, 1920, p. 60.*

inhaling the vicious air of the *chawls* and repeated pregnancies, succumb to the pains of confinement, while those who survive look back with horror over the incident.

The table on page 134 indicates the incidence of maternal deaths on account of child-birth in the urban and rural parts of India in 1927.

High Maternal Mortality.—The practice of recording these statistics has been newly started, and therefore a good deal still remains to be made up in accuracy before they can give any correct idea of the mortality from this cause. The Director of Public Health for Bengal considers that twenty per thousand births gives a fair representation of the maternal mortality rate in Bengal. The majority of children of those mothers who die shortly after confinement also die. Detailed figures of maternal mortality from the point of view of causation or age period incidence are not available. Recently, however, the Indian Research Fund Association has made a grant-in-aid for an enquiry into maternal mortality and morbidity in India, and enquiries have been set afoot in Bombay, under Dr. Balfour, and in other places also under competent investigators; and it may be hoped that their efforts will serve to throw more light on this vexed problem.

Epidemic Diseases.—Coming to a discussion of the epidemic diseases which cannot entirely be attributed to town-life, and which generally levy a high toll on the lives of the rural folk, we find that their virulence has a tendency to increase rather than decline with the advance of time. Whereas cholera has become a more or less normal feature of India, plague took a toll of over six and a half million inhabitants between 1901 and 1911, the period of its virulence. But the epidemic of influenza has broken all records. The mortality figures of this scourge for 1918 alone go over 7,100,000, and, if we include another million and odd for 1919, the total exceeds eight and a half million in British India alone. If the mortality in the Indian States were to be calculated at the same rate, —as a matter of fact it was much higher—the total will come to over 13 millions during 1918–19. ‘Even this,’ observes Mr. Marten, must be a substantial under-estimate, since, owing to the complete breakdown of the reporting staff, the registration of vital statistics was, in many cases, suspended.’² The figures further indicate that

² Marten, *Census of India*, 1921, Vol. I, Pt. I, p. 13.

the excess mortality between the ages 20 and 40 amounted in some cases to nearly four times the mean. It would be no exaggeration to say that, at the worst period, whole villages were laid absolutely desolate by the disease. There was at times no means of disposing of the dead, crops were left unharvested, and all local action was utterly paralyzed owing to a majority of the official staff having succumbed to the epidemic. Rightly does Mr. Marten conclude, 'The number of deaths, however, is not, of course, the measure of the loss of life from the epidemic. The case mortality has been put roughly at about ten per cent, and on this basis the total number of persons affected by the disease was about 125,000,000, or two-fifths of the total population of India.'¹

Their Incidence.—As a rule the epidemics affect the rural areas much more severely than the urban, because, while the villages have little advantage over the towns in respect of overcrowding, sanitation, ventilation, etc., on account of the gregarious and centripetal tendencies of the Indians, the urban areas have the benefit of qualified medical aid and organised effort. It is certain, however, that the epidemics cause untold misery among the working-folk, living under conditions most susceptible to their fury, and if statistics were available of the periodic desiccation of our labour quarters from plague, cholera and influenza, it is certain that they would make most pathetic reading. Thus, during the influenza epidemic in 1918-19, the mortality rate from the disease in Kidderpore, one of the most congested wards of Calcutta and where there is a large population of low-paid dock-hands, was 21·1 as against a general mortality rate of 4·1 in the city.

Fevers.—Fevers are responsible for a large number of deaths in India every year, and in 1927 no less than 57·4 per cent of the total deaths have been attributed to them. Malaria has been the principal 'sinner' in this matter. It has been recorded that over eight million people attended the hospitals for malaria alone in 1927. Considering the fact that only a small proportion of the people, mainly townsfolk, go to the hospitals, this number is really very disquieting.

It has been established beyond dispute that contemporary nations, races, or parts of the world which are cursed with malaria are permanently enfeebled and are unprogressive. The disease is

¹ Ibid., p. 14.

less a killer than a sapper of vigour and energies; and, accordingly, these figures have a particularly sinister significance. Dr. Pais, in his report on malaria in Italy, says: 'Malaria tends to impress a character of regression on the population among whom it reaps its victims, and causes them to fall from the grade of civilisation they have attained.' Continuing, he observes: 'Compared to tuberculosis, malaria kills less frequently, but it inexorably destroys the more lively energies of man. It impoverishes the blood, causes all the forces of man to droop and wither, and, above all, brings physical degeneration on the race it smites.'¹

Effects on City Dweller.—Dr. Pais' picture of those suffering from malaria marvellously fits in with the present condition of the people of our towns and cities. Whereas the inhabitants of rural areas quietly die at the appearance of malaria, the townsfolk remain to lead a life of misery and physical wreckage.

Remedies.—No medicine is, however, more effective in controlling the fury of these epidemics than a systematic and persistent propaganda among the people to revive the ancient respect and care for the purity of water in vessel, river, pool, tank and *nullah*; and cleanliness of person, house, and surroundings. The fact that the average Indian is moved more easily by an appeal to religion and emotion should guide the official and social agencies, in disseminating such information, more on the strength of ancient customs and usages rather than on cold reason and obscure science.

But whereas the propaganda for cleanliness and purity might do good with the masses, the special circumstances of the industrial and commercial cities require a more drastic remedy. The overcrowded and insanitary conditions of the poor quarters in most of our cities, coupled with the gross illiteracy and low standard of living of the inhabitants, make it extremely difficult for them to observe the rules of hygiene which appear to the comparatively better situated as simple and inexpensive.

¹ *Report of the Director of Public Health, Bengal, 1922.* Quotation on page 32.



PART IV

REMEDIES

CHAPTER X

MUNICIPAL SANITATION

Local Self-Government in Ancient India.—Local self-government was one of the principal features of the ancient Indian polity. The *sabhas*, or assemblies, of mediæval Indian cities addressed themselves to the promotion of public welfare in the social, economic, political and religious spheres of life, with a zeal we seldom meet with in any official or semi-official bodies of the present day. Dr. Radha Kumud Mukerjee, in his *Local Self-Government in Ancient India*, has shown how these bodies looked after the conditions of local sanitation, water-supply and public health among their numerous other socio-religious activities. The *sabhas*, or *panchayats*, in the temple cities of southern and western India, and to some extent even in the smaller villages, have still maintained the relics of these important and beneficial institutions, although they have, unfortunately, been superseded by a foreign system of municipal administration in a majority of our towns and cities. These new institutions have not utilised the indigenous organisations, and in many cases have been brought into existence at the cost of the more useful and popular bodies existing at the time. The inevitable result has been that the new local and municipal governments have evoked little enthusiasm among the people, and have disappointed the most sanguine expectations of statesmen, who have failed to utilise the Indian genius for self-government and democratic institutions. Not infrequently has it been affirmed by Europeans that India has always been governed by autocratic kings and monarchs, and she has no traditions of popular or democratic institutions. A study of the perfection to which municipal and local government had reached in ancient India would dispel all such illusions.

Beginnings of the Present Municipal System.—The beginnings of modern municipal progress may be traced to 1850, when a large number of municipal councils were instituted in the different provinces by an Act of the Government of India. Subsequently, Lords Mayo and Ripon infused a fresh life into them by introducing the principles of election and local finance. Local Acts have since been passed in almost every province, and greater

opportunities have gradually been given for popular control and administration. The weakness of the financial position and the extreme poverty of the people, on account of which the smallest increase of local taxation is keenly felt, have stood in the way of many essential and urgent improvements in general sanitation, conservancy, water-supply, lighting, etc. At the present time, municipal councils exist in almost every town worth the name, and have been entrusted with important and extensive powers and responsibilities. It is, however, an unfortunate fact that, except for the ordinary routine work, they have taken little pains to undertake systematic and comprehensive development schemes, or embark upon a bold policy of slum clearance and sanitary improvements.

Some Shortcomings.—As we have already seen, the unregulated and unsystematic growth of our towns is, in no small degree, responsible for the disorder and confusion which they exhibit to-day; while this haphazard growth is itself the result of the apathy of municipal and local governments in the past. In fact, the municipalities have failed to prevent the growing squalor and confusion in many an industrial town to-day. Many municipalities have not devoted any serious attention towards the reconstruction or improvement of the numerous stinking open drains and dirty bye-lanes, or even tried to prevent people from urinating and defæcating on them. Sufficient water is not available even for drinking purposes in most towns in India, and one often finds crowds of busy labourers, in the poorer quarters, waiting near the water-taps every morning and evening for hours for their turn to get a bucketful of water. How can we expect, in the circumstances, to find an adequate supply of water for flushing the latrines, urinals and the drains, which inevitably get blocked and emit the most abhorrent odours? There is no adequate watering of roads, which are also left without proper repairs. Dirt and dust, as well as holes and ditches, are common features on public thoroughfares, while garbage and filth of all descriptions litter the streets.

The Inadequacy of Funds.—Thus in every field of municipal activity we meet with the same tale of inadequate and inefficient administration. As has been pointed out above, all improvement schemes have ultimately to face the question of finance. 'The financial position of many boards,' says the Municipal Administration Report of the U.P., 'continues to be extremely

unsatisfactory, not to say critical. . . . At the same time, there has been a demand, encouraging in itself, for the introduction of modern sanitary and lighting improvements, which, in view of the state of the markets and of the exchanges, have proved extremely difficult for the boards to finance. Few of them are self-supporting in the sense that they can look forward to a future of development on modern lines without assistance from Government.¹ Similarly, the Report on the Municipal Administration of Bengal, while dealing with the question of finance, has the following significant passage on the effects of the insufficiency of money with the boards: 'Schemes which are broached with some eagerness and worked out in industrious detail are indefinitely postponed, and finally cease to possess interest or to generate hopes; and disappointment of this kind produces in the end apathy and stagnation. Municipal administration offers an attractive and ample field for the highest talent, and ideas can be given scope. Where municipal income is not sufficient to deal with the insistent problems of disease, water-supply, conservancy and education, all of which call for a vigorous policy of improvement, municipal administration becomes dreary and barren, and there is engendered a repugnance to self-taxation.'²

Municipal Economy—True and False.—A close study of the problem, however, shows that thrift in municipal expenditure is bad economy, and its price has to be paid in human lives. 'Public health,' as Dr. Raghavendra Rao observes, in his Report on the Administration of Public Health in the Corporation of Madras, 'cannot be had for the asking, nor can it be had by a wave of the magician's wand. It closely accompanies good sanitation, and good sanitation is not cheap in money—because disease and dirt are very expensive things to deal with. If the sanitarian were able to make money for the community, he would be more popular than he is. Still, that good sanitary work pays in health and comfort, and that a healthy community is a great asset to the state, are acknowledged facts.'³ Simple ignorance, religious superstition, apathy, fatalism and pecuniary considerations are some of the several conditions obstructing sanitary progress; while

¹ *Government Resolution on the Working of Municipalities in the United Provinces*, for the year 1923.

² *Government Resolution on the Working of the Municipalities in Bengal*, for 1923.

³ *Annual Report of the Health Officer, Madras, 1917*, p. 7.

unconscionable self-interest is probably the worst, for it hinders the enforcement of all bye-laws and regulations framed with the direct object of putting an end to the license to create nuisance. The results of the gross neglect of sanitation in most of our towns are visible in the high mortality from epidemic, endemic and infectious diseases. Cholera, plague, influenza, malaria, all find a favourable soil in the dirty *bastis* and poor hamlets of labourers in the towns and cities, and among the ignorant and poverty-stricken peasantry of the rural areas.

Defects of Water-supply and Conservancy.—But the main causes, which maintain the death-rates at a high level even in non-epidemic years in our industrial towns and commercial cities, are the insufficiency of water-supply, the inadequacy and inefficiency of the sewage and drainage systems, the dearth of latrines and urinals, and the dirty state of conservancy—all preventible causes—coupled with the ignorance of the people as regards the laws of sanitation and hygiene, their dirty and unclean habits and extreme poverty. 'In cities in India,' observes Dr. Turner, 'a high mortality follows closely insanitary surroundings, absence of the domestic and personal hygiene, want of ventilation and light, and the presence of filth; in fact, the incidence of disease is directly related to the insanitary domestic surroundings, the incidence varying with the habits and customs of the people with regard to their food, personal cleanliness, domestic habits, washing, bathing, cleaning of rooms, clothes and personal habits of living and sleeping.'¹ The density of population and the overcrowding of houses in rooms and tenements lead to the want of sufficient air and light for the inmates and makes most of these defects inevitable, while it contributes, in no small measure, to the insanitary conditions prevailing, both in the bigger cities and in the growing mill and mining towns.

The Rat Campaign in Nagpur.—The extent to which well-regulated municipal action can mitigate the evils from these causes can be gauged from the fact that incessant anti-malarial work in Bengal and a well-organised rat campaign in Nagpur have succeeded in reducing the mortality from malaria and plague respectively in these places to very low figures. The rat campaign, which was started in Nagpur in 1917, consisted chiefly in the distribution of over 2,000 rat traps from house to house in rotation,

¹ *Sanitation in India*, Turner and Goldsmith, p. 893.

so that each house got, on an average, a trap for three days every month. Poison baits were issued to householders, while people were induced to destroy rat holes in individual houses and shops and to make rat-proof floors and walls. Bacteriological examination of rats was also carried on regularly in the municipal dispensary ; but the chief measure on which the municipality rightly laid great stress was propaganda work, which is being carried on by means of street lectures, in simple and intelligible language, among the people, educating them in the idea and method of the rat campaign by explaining the difficulties in exterminating the rat population and how to surmount them during their visits to individual houses, and by the distribution of a series of leaflets on plague and rats. The results of this campaign have been very encouraging, in so far as the city has been practically immune from the epidemic for the last four years.

The following comparative table of deaths from plague and the number of rats destroyed in Nagpur and Jubbulpore (where no rat campaign was carried on) is instructive :¹

YEARS	NO. OF RATS DESTROYED		DEATHS FROM PLAGUE	
	Nagpur	Jubbulpore	Nagpur	Jubbulpore
1917 ..	21,688	1,054	332	1,397
1918 ..	17,554	2,287	991	1,036
1919 ..	46,581	..	1,732	963
1920 ..	13,401	..	401	1,282
1921 ..	60,245	..	5	3,169
1922 ..	62,545	..	1	449
1923 ..	67,369	..	13	..
1924 ..	..	..	..	..
1925 ..	52,082	..	16	..
1926 ..	69,283	..	10	590
1927 ..	65,807	..	91	333

Municipal Administration in England and America.—

The conservation of life ought to be the greatest lure that citizens, health departments, or municipal administrators could have. 'Health,' observes Zueblin, 'is undoubtedly the most pressing interest of the municipality. Although industrial conditions are responsible for many accidents and much ill-health, the municipality has the

¹ *Report of the Health Officer, Municipal Council, Nagpur, 1923-24, pp. 32-33.*

power of control over sanitation that it has not over the economic status of its citizens.¹ In England and the U.S.A., municipal administration has so far been perfected that we never hear anything except in praise about them. In England, for example, the local sanitary authorities—the county councils and the metropolitan boroughs—are not only charged with the proper upkeep of roads and sewers, water-supply, lighting, education and recreations, but have important responsibilities with regard to the prevention of infectious and other diseases, the provision of sanitary dwelling houses, and the improvement of the general sanitation and appearance of the towns. The English sanitary authorities own and manage all sewers, and enforce the provision and proper management of privies and urinals in all inhabited buildings, factories and workshops. They also undertake the removal of refuse from houses, and construct proper sewage works for the disposal of such refuse matter. Every owner or occupier of premises is entitled to drain into the sewers belonging to the sanitary authorities of his district, subject to the observance of proper conditions; while the 'sanitary authorities themselves are not permitted, as in India, to foul a natural stream by allowing the escape into it of sewage matter.'² Unlike in India, sanitary authorities in England are legally bound to see that there is a sufficient supply of water for every house. Above all, the local sanitary authorities are definitely charged with the duty 'to inspect their districts periodically with a view to the discovery of houses unfit for human habitation,' and, upon due proof of the facts, to order the houses in question to be closed and ultimately to be demolished. Even though a building is not unfit for human habitation, the local authorities can purchase the same, if it prevents due ventilation or otherwise causes, or prevents the removal of, a nuisance in other buildings.³

Housing and the Municipalities in U.S.A.—In America also, after the passing of the Tenement House Act in 1901, a million and a half of people have been housed in new tenements, built according to the public requirements. Over two-thirds of the people living in these apartments have a private bathroom. In fact, there is a genuine interest in housing in American cities. The National Housing

¹ Charles Zueblin, *American Municipal Progress*, p. 109.

² Edward Jenks, *English Local Government*, p. 96.

³ *Ibid.*, p. 99.

Association reports 177 cities and towns taking up the problem of housing, a subject that was left to chance up to the end of the nineteenth century. In Brooklyn, between 1909 and 1914, the number of dark rooms was reduced from 192,573 to 8,016, and the number of windowless rooms from nearly 60,000 to half a thousand. In Washington, 'the city of magnificent distances,' the poorer population of which used to live in alleys and whose hygienic and moral conditions were incredible for the capital city of that great country, an Act has been passed to the effect that, 'The use or occupation of any building or other structure, erected or placed on or along any such alley, as a dwelling or residence or place of abode by any person or persons, is hereby declared injurious to life, to public health, morals, safety and welfare of the said district, and such use or occupation of any such building or structure on, from, and after the 1st day of July, 1918, shall be unlawful.'

Slum Clearance in England.—In England and other countries, social reformers and municipal councillors have been agitating for the removal of the few single-roomed tenements, and back-to-back houses that still remain in some of the industrial cities of the United Kingdom; while in India such conditions even to-day are considered to be a normal feature of city life. Thus *The New Leader*, of the 23rd February, 1923, took pains to find out and publish that Leeds has 72,000 back-to-back houses, Manchester 26,000 condemned houses, Glasgow 30,000 one-roomed houses accommodating three people each, and Birmingham 43,000 back-to-back houses inhabited by about 200,000 people; and expressed wonder and astonishment at the callousness of the authorities in allowing such conditions to exist for a single day.

Municipal Housing in Other Countries.—In Germany also the cities and local governments have been extremely active in constructing houses, largely on their own initiative, from the earliest times; while Italy, France, Belgium, etc., have thorough-going municipal regulations in respect of housing and public health.

Drains in Indian Towns.—No municipality of a small town in India has considered the question of housing, while the administration of public health lacks everything to be desired. It is common to find *nalas*, or open drains, full of stagnant water, and containing lots of greenish decomposing solid deposits as a result of the sweeper's neglect. The *moris* are always allowed to remain in the most neglected condition, while underground drains not

infrequently burst open and spread the most abominable odours all around. Open drains of the most obnoxious type run the entire length of the principal streets, immediately under the entrance of the dwelling houses. It is common to find worms, mosquitoes and insects breeding in large numbers in the *nalas* and water-sinks near the labour *bastis* and the poorer parts of the city generally; so much so, that in places like Ahmedabad, Cawnpore, and even Bombay, the inhabitants confess that evening meals are sometimes accompanied with vomiting. The residents of such places bear living testimony to the disastrous effects of such conditions on the general health of mankind. They are generally pale, anæmic, thin and lean, and frequent victims to disease.

The Shortage of Latrines.—It is common to find in the labour *bastis* an accumulation of faecal matter, dust, dirt and refuse near the the privies, on account of the limited number of W.C.s—hardly one for 50 people—and the absence of proper cleanliness. Thus, in Nagpur there are only 8,713 private latrines as against 23,169 houses. It is, therefore, clear that 14,456 houses have no latrines at all. The public health officer of Nagpur, in his report for 1923-24, draws attention to this fact, and observes that 'this throws a considerable burden on the existing public latrines in use, which number 57, with about 1,100 seating arrangements. As a result of this lack of balance between demand and provision, people obey the calls of nature at each and every place.'¹ In Panjarpoli, in Ahmedabad, rows of people can be seen waiting for their turn to get entrance to the public privy as early as six o'clock in the morning, while a still larger number, consisting of men, women, and children, would be found seated on the ground near about to answer the calls of nature. This is inevitable, since more than 62 per cent of the labour class people in Ahmedabad, including men, women, and children, have no latrine facilities.

The Contamination of Water.—In many cases we have seen wells and water taps within a yard of privies and sewage pipes. Evidently water passing through such vicinity is contaminated and rendered unwholesome for drinking purposes, and yet there are frequently no regulations to prevent these things. In one place, outside Gontipura, in Ahmedabad, we saw a well whose mouth

¹ *Report of the Health Officer, Municipal Committee, Nagpur, 1923-24*, p. 38.

was immediately on the base of the refuse matter flowing from the privies; while some urine and liquid faecal matter were actually making their way into the well! The *kundis*, or small tanks, for the accumulation of urine, waste water and nightsoil, are frequently found emitting the most obnoxious smell, which makes its way to a great distance. It is impossible to stand at such places, so common in the labour *bastis* in every industrial town in India. The ghastly appearance, the over-powering smell, and the exact condition of these places can never be imagined unless one pays a visit to them. If the privies and the urinals were but cleaned as frequently as possible, and the faecal matter removed once or twice a day, and the privies and the drains regularly disinfected and otherwise kept clean, the conditions would improve considerably.

The Disposal of Sewage.—As it is, attention is seldom paid to the poorer quarters of a town. The sullage cars, used for carting away the nightsoil and other waste matter, are usually so rickety that portions of the faecal matter and dirty water are left on the spot and strewn on the way, while the whole place is rendered unbearably stinking. The streets and bye-lanes, thus strewn over with nightsoil and urine, present an unsightly appearance if seen in the morning, and yet these are the places where young urchins play about and inhale the deadly poison.

In many parts where there are no drains, open or concealed, waste water is allowed to accumulate near the tap or the well in a *kundi* which is not regularly cleaned. In such places, the whole problem is the collection and disposal of household and public sullage water. Generally, municipalities have no regulations to force householders to construct suitable means to collect their own sullage water, which, in many cases, we found overflowing on the roads in Ahmedabad, Bombay, Cawnpore, Nagpur, Titaghur, and Bhadreshwar. Apart from the breeding of mosquitoes and vermin, and the spreading of the obnoxious smell from such places, the locality is rendered damp and unhealthy, while in some places regular dirty and muddy channels are established, which are filthy to look at and horrible in their effects on the health and vitality of the individuals living in such localities. In fact, the health of the people living in such undrained areas is being imperceptibly undermined, without anybody knowing or caring about them. Public latrines have been built immediately in front of the houses built by the Port Commissioner for his employees at Kidderpore, in

Calcutta, while not infrequently, at Titaghur and the other jute mill towns, the distance between the public latrines and the labourers' houses is too small.

Crude Methods for the Removal of Rubbish.—Conservancy and the methods for the disposal of rubbish are still very primitive and require early improvement. 'It is regrettable to note,' observes the health officer of Madras, 'that in almost every case no thought has been bestowed on the disposal of sewage, which stagnates within the compound, in the roadside ditch, or runs into the next neighbours' compound.'¹ Dr. Dubey, health officer of Lucknow, rightly points out in his annual report that the existing methods for the disposal of rubbish in hollows and *garhias*, etc., at convenience, is as bad as can be. Rubbish is ill-thrown, ill-collected, ill-removed, ill-dumped, and ill-dressed, with the result that it adds myriads of germs along with the dust to the already otherwise polluted atmosphere, especially of a congested area. The method of removal in wooden carts, which are also used for removing nightsoil from the public latrines to the fields of the cultivators, is obviously objectionable, and requires no expert opinion to condemn it; the evil effects of its transportation in carts, which are filled to overflowing and carried uncovered, is also not difficult to understand, when it is realised that these carts are primarily meant for the removal of nightsoil, which, being heavier than rubbish, bulk for bulk, requires carts of smaller dimensions. The dumping of rubbish in hollows, etc., without properly covering it up to avoid both the fouling of the atmosphere and the breeding of flies, is not without its baneful results on the vital statistics of the town.² The above remarks hold equally good in the case of Ahmedabad, Cawnpore, the jute mill villages, and other industrial towns.

The General Prevalence of Insanitary Conditions.—

Dr. Sandiland, referring to the sanitary conditions of Bombay, observes, 'The principal causes of the insanitary conditions . . . are the insufficiency of water-supply, the insufficiency of the sewers, the continuance of the basket privy system of conservancy, the density of houses and persons per acre, and overcrowding of persons in rooms and tenements.' Continuing, Dr. Sandiland points out that

¹ *The Annual Report of the Health Officer, Madras, 1917.*

² *Annual Report of the Health Officer, Lucknow, 1910, p. 25.*

'the gravity of the insanitary conditions results from the inadequacy of the present sewer system and the continuance of the old insanitary basket privies. No progress has been made in the past year, and the position remains now what it was ten years ago, except in so far as it is, year by year, aggravated by a steady increase in the population.'¹ Conditions in Calcutta and the jute mill towns along the Hooghly are hardly better. We invariably found in the labour *bastis* in Serampore, Baranagar, Titaghur, and other jute mill towns, refuse and dirt fermenting in front of the houses of the poor people, and that in spite of the fact that the inhabitants pay municipal taxes. 'The method of the disposal of the refuse,' observes the health officer of Nagpur, 'is far from satisfactory. Places within the city area have been selected for dumping refuse, a practice which should be discontinued by reason of its tendency to fly-breeding and fly infestation.'² Places where fermentation or putrefaction on a large scale is going on, such as sewers, drains, refuse heaps, cesspools, septic tanks, etc., spread typhoid, dysentery, cholera, summer diarrhoea, diphtheria, venereal diseases, smallpox and various kinds of fevers; and there is no wonder, therefore, that Indian cities are full of all these diseases.

Difficulties of Water-supply.—The problem of an adequate water-supply is another stumbling-block for the municipalities, particularly those in the *moffusil* towns, which cannot undertake the expensive luxury of huge waterworks. In some provinces the problem is really very serious. As has been repeatedly pointed out in the resolutions of the ministry of local self-government in Bengal on the administration of municipalities in the presidency, 'smaller municipalities could well try water-supply schemes of a cheaper type based on artesian borings or tube-wells, which might be worked by oil engines.' Special attention must, however, be paid to the proper disinfection and regular cleanliness of tanks and wells, where those are the chief sources of water-supply.

The Problem of Well Water.—The *kachcha* well, which is so common in the suburban and *moffusil* municipalities in Bengal, is the chief source of the supply of water, both for drinking and other domestic purposes. The possibilities of the pollution of water in these wells are very great, particularly when they are within easy

¹ *Report of the Health Officer, Bombay Corporation, 1923-24*, p. 42.

² *Report of the Health Officer, Municipal Council, Nagpur, 1922-23*, p. 22.

reach of *kachcha* privies and cesspools. The mere provision of a partition wall between the privy and the well is no safeguard against pollution. The absence of a parapet wall round the mouth of the well, the habit of immersing vessels scrubbed with mud in the well for washing purposes, and the presence of a wooden framework for persons to stand over the well-mouth to draw water therefrom, add to the sources of pollution. In all these matters, a careful and diligent supervision on behalf of the municipality is needed.

The Wastage of Water.—The bigger municipalities, on the other hand, which maintain waterworks and filter tanks, find it increasingly difficult to meet the growing demand for water, and accordingly starve the drainage system of its necessary requirements of water for proper cleanliness, which in its turn gets blocked and creates fresh sources of mischief. One of the chief causes of the shortage of water is the enormous quantity of waste. The Calcutta Corporation recently tried the experiment of assessing the water-tax according to the quantity of water used; but the experiment involved such enormous cost and complex calculations and management that it was soon given up. Propaganda work and the substitution of a good quality of automatic stop-cocks for the ordinary screw taps might be expected to help considerably in minimising the waste of water.

Pressure on Ground Space.—We thus see that the problems of overcrowding, congestion and insanitary housing are acute in almost every industrial and commercial town in India. Municipal efforts to deal with them have necessarily been partial and fragmentary, for want of funds no less than for lack of a bold and clear-cut policy. Most of the poor people live in *chawls* and *bastis*, where every inch of ground space is utilised for building purposes; so that frequently rooms are both ill-lighted and ill-ventilated. At night, when eight to twelve people huddle together in a small room, 10 ft. by 10 ft. in area, closed from all sides, the air is left compressed and impure. Vitiating air is generally characterised by rickets in children, and anæmia, dyspepsia and lassitude in grown-up people; while the inhalation of such poisoned air results in a lowered resisting power against all maladies, and particularly phthisis, bronchitis, diphtheria, pneumonia, enteric fever, parasitic skin diseases, and gangrene, which are common in labour *bastis*.

Gullis in Bombay.—Writing about the conditions in some of the labour quarters in Bombay, Dr. Turner, whose extensive know-

ledge of sanitation, long and close association with the city, and keen insight entitle him to speak with authority on the subject, remarks that the houses are built back to back, there being only a narrow passage between the rows of houses in one street and the next. The depth of houses from front to back is excessive, and usually the whole of the available space behind the street frontage is occupied by the building itself; the privies in many case are not properly detached, and the air of the dwellings is continually charged with most noisome odours. There is rarely a *gullie* at the sides of houses, and where one exists it is generally not more than two feet in width. As a result of this, the buildings as a whole are deficient in light and ventilation, the centre rooms being often in absolute darkness and dependent for ventilation upon the passages within the houses. Speaking generally, the *gullies* are open channels for carrying off sullage, while the pavements are usually not watertight and the fall towards the street drain very unsatisfactory. Many of them serve as passages for sweepers, and are flanked on either side by a long row of privy shafts. In such cases the trap doors of the shafts abut immediately on the *gullie*, and when the receptacles get full and overflow, as they frequently do, the liquid filth is discharged on the surface of the *gullie*. Refuse of all kinds is also thrown into the *gullies* by the people living in the adjoining houses. . . . Moreover, owing to the structural defects, liquid filth is not taken away, but stagnates in the *gullies*, and the foundations of the houses and the soil around them are continuously receiving what, to all intents and purposes, is the soakage of sewage. In this way the soil and the sub-soil are fouled and rendered damp, and the level of the ground water is raised.¹ The evils arising from such a state of affairs are too patent to need elaboration here.

Minimum Housing Requirements for the Poor.—The erection of huge blocks of buildings is contrary to the habits and customs of the people, coming from open country-places. They are, moreover, prejudicial to health and difficult to control. Again, they reduce the value of the locality on account of overcrowding, which in turn undermines the vital powers of the inhabitants. Working-class families in large cities in India could be suitably housed in tenements having one living room, at least 10 ft. by 10 ft., with a small anti-room, 6 ft. by 10 ft., for the kitchen, which can also serve

¹ *Sanitation in India*, Turner and Goldsmith, pp. 895-96.

as a store if it is supplied with a cupboard, and a sink in one corner where vessels could be cleaned and kitchen water allowed to pass. The rooms, particularly the kitchen, should be provided with broad barred ventilators, situated at a sufficient height in order not to interfere with the privacy of the rooms. In no case should rooms be built back to back or more than two stories high, while houses in blocks of four should be always the model for working-class families, because they allow through ventilation to every house from two sides, which are absolutely open.

Underground Chawls.—Frequently in Ahmedabad, and not very seldom in Cawnpore, Howrah and Nagpur, *chawls*, where labourers and other poor people live, are several feet below the level of the road, so that during the monsoons the houses are pools of water, while in other seasons they are damp and insanitary; and yet our municipal councillors are never perturbed! If examined by principles applied in the West, more than 80 per cent of the houses in which industrial labourers live in India at present are altogether unfit for human habitation.

Improvement of Poorer Quarters.—It is true that some of the municipalities have been doing commendable work in the sphere of public health and the general improvement of the town under their sway. In Bombay and Calcutta particularly, the municipal corporations have carried out large schemes of town expansion and even of slum clearance. It cannot be gainsaid, however, that even in these places the poorer quarters have not received even a fraction of the attention that has been devoted to the improvement and beautification of the richer parts. For an even and harmonious development of the town it is necessary that works of public utility, like drainage, sewage, water-supply, etc., should not be confined to any favoured parts, but should be spread throughout the town at the same time, or within short intervals, without invidious distinctions. In fact, the poorer quarters, which naturally present a state of worse squalor and dirt, should obtain precedence in any scheme of development.

Improvement and Enforcement of Bye-laws.—Thus, in the first instance, the powers and responsibilities of the municipalities in the sphere of public health and sanitation should be consolidated and harmonised, and their bye-laws and regulations brought up to date; and, above all, it should be made obligatory rather than optional upon the municipalities to carry out the

necessary minimum of sanitary improvements in every quarter under their charge. The municipalities, moreover, should raise the standard of public health generally, and make the building bye-laws regarding lighting, ventilation and sanitation more stringent and more effective, so that it may no longer be possible for anybody to infringe them with impunity. As it is, the building bye-laws in most of the towns are honoured more in their breach than in their observance. The report on the working of the municipalities in the Punjab for 1923-24 observes that four committees have no bye-laws of any sort to control buildings, and in nearly all cases the provisions of the bye-laws go very little beyond the provisions of the existing Act: in very few cases have committees made bye-laws the enforcement of which would ensure the control of buildings on satisfactory up-to-date lines. Government, therefore, desire to commend to all committees the necessity of overhauling their building bye-laws with a view to securing that control which considerations of public health make so desirable. It is not, however, sufficient to have good bye-laws; it is also necessary to enforce them strictly and impartially, a matter in respect of which it would appear from some of the reports that certain committees have failed in their duty.¹

Sanitary Report.—The municipalities, moreover, should be asked to maintain a sanitary housing record, like the one in vogue in Paris, where every house in the city has its card, on which is annually marked down the estimate, made after inspection of its condition by its sanitary department, in short, its health value. This will not only keep the municipal officials always alert and informed about the exact state of affairs in the city, but would succeed in evoking a legitimate house pride among the people, and the consequent increase of actual value.

Slum Clearance and Town Expansion.—Side by side with this, the municipalities must undertake a vigorous policy for the clearance of congested and unhealthy areas, as well as individual houses, and to frame laws against future injudicious, insanitary or unwholesome building. All local bodies, and those in the growing mill and mining towns particularly, should be required to prepare, and keep ready for reference, plans for the improvement, expansion and extension of town areas, with lay-out plans for factories, houses,

¹ *Government Resolution on the Working of the Municipalities in the Punjab, 1923-24, pp. 1-2.*

markets, schools, hospitals and other public buildings, roads, streets, parks, open spaces, etc., and to strictly prohibit the chaotic growth of mills and factories in the very heart of the towns, as is, unfortunately, but too generally the case with most of our cities to-day. Furthermore, municipalities must provide house accommodation to those dispossessed of their houses by their action, either by constructing model houses at the cost of the municipality, or, preferably, by providing land and loans to the people to construct houses on their own account and according to their individual requirements, under the general supervision and direction of the local sanitary authorities. The question of finance has to be settled by provincial legislation, so that municipalities might provide money for their needs: firstly, from local rates and cesses; secondly, from provincial contributions; thirdly, from municipal loans; and, finally, and in the last resort, by taking recourse to fresh taxation earmarked for particular purposes.

Sanitary Squads and Health Visitors.—Last, but not least, the municipalities should try to engender the habits of cleanliness and sanitary living among the inhabitants by propaganda work and by organising Health Weeks regularly, where each individual in every household should be called upon to contribute his share to the general cleaning up; for ultimately it must be recognised that much depends upon the voluntary efforts of each householder in the matter of hygiene. Sympathy, guidance and instruction by health visitors can effect immense improvements in the houses of the poor, even while poverty continues. The extent to which personal appeal and example is useful in this connection is clearly demonstrated by the admirable example of Miss Octavia Hill. Miss Octavia was a London woman of remarkable personality, who, without capital or backing save that furnished by loyal friends, and amid all the hand-and-foot shackles of the mid-Victorian era, proved that the most unpromising old tenements could be put in a fairly sanitary condition by judicious repair; and that, through devoted, personal service and the establishment of friendly relations with the tenants, the houses could be kept clean and decent, and a great improvement effected in the health and habits of the poor people living in them. It is a form of home missionary or welfare work, with improved housing as a background. It was in 1865 that, with the help of Ruskin, she raised enough money to buy three dilapidated houses in Marylebone, in London, to start her initial

experiment, and so successfully carried on her missionary work among the poor people of London that she soon obtained the admiration and willing co-operation of hundreds of other social workers, philanthropists and even administrators, who at first mocked at her.

Propaganda Work.—The value of propaganda work has not yet been realised by municipalities in India. No advance in hygiene can be looked for until the sanitary conscience of the people is awakened, and for this the education of the masses needs to be taken in hand. It is a matter of extreme gratification that the Health Department of the Nagpur Municipality has undertaken and recognised propaganda work among the regular duties of the department. 'There is much that can be done to awaken a sense of responsibility in the ignorant populace, and cause them to imbibe ideas of practical sanitary principles,' observes the health officer of Nagpur. The department has been particularly fortunate in securing the services of an enthusiastic and enterprising worker for this work. The health officer comments upon his work in the following words:

'His routine work consists in lecturing to groups of people regularly every week on different subjects of hygiene, and, at times when isolation cases of infectious diseases are reported, to gather the people of the locality round about him and talk to them about the disease, the precautions necessary to avoid it, and so forth.' The health officer rightly adds that 'informal talks to small groups of people are more popular and effective than formal lectures in a gathering. The talks are more convincing, and help to clear away any doubts or misconceptions from the individuals attending those talks.'¹

¹ *Report of the Municipal Health Officer, Nagpur, 1923-24, p. 49.*

CHAPTER XI

IMPROVEMENT TRUSTS AND THE HOUSE FAMINE

The Establishment of Improvement Trusts.—In India, the Improvement Trusts have set before themselves the task which in England has been accomplished by the Ministry of Health and county councils, under the express provisions of the Housing and Town-planning Act of 1909, and other subsequent enactments pertaining to housing, public health and sanitation over and above the numerous bye-laws and regulations, issued from time to time, by county councils, metropolitan boroughs, and various other local bodies. The municipal acts and bye-laws, no doubt, existed in Indian towns even before the inception of the Trusts, but they have been so cumbrous, inconsistent and inadequate as to be almost useless for all practical purposes. No wonder that the improvement of insanitary areas, the provision of model houses for the work-people, and the general development of the towns have altogether been neglected. Even at the present time, most of the municipal councils, in towns which are deprived of the luxury of an Improvement Trust, consider questions of town-planning and other development schemes as almost foreign to their functions.

Number and Formation.—The first Improvement Trust was created in the city of Bombay in the year 1898, after a terrible visitation of plague in 1896 harshly directed attention to the insanitary conditions arising from gross overcrowding in the city, and when the provincial government realised that the work of effecting some of the desirable improvements was too great for the municipal corporation. Heavy expenditure and a bold policy were two things necessary for the improvement of the gruesome conditions prevailing in the city, and it was accordingly felt that a separate body was necessary to look after the general health of the people and to take the necessary measures to improve and expand the city. The specific duties which finally devolved upon the Trust were: to construct new and widen old streets, open out crowded localities, provide open spaces for purposes of ventilation, reclaim land from the sea to secure room for expansion, and construct dwellings for the poorer people and the working-classes. The

Calcutta Improvement Trust was similarly instituted in 1912, and owes its inception, like its Bombay contemporary, to the recommendations of a committee on the epidemic of plague in the city in 1896. The problem of expansion was particularly difficult in Calcutta, because of its peculiar situation—being shut up on one side by the Hooghly and the other by salt lakes. The Improvement Trust of Rangoon soon followed suit, and in 1919 similar Trusts were created in three important cities of the United Provinces, namely, Cawnpore, Lucknow and Allahabad. Thus the field of the activities of the Trusts is limited to six cities in British India. Most of the commercial and industrial cities have no other body except the municipality to look after their sanitary and housing conditions. In the numerous growing mill and mining towns, the Improvement Trust, or any other similar body, is almost unheard of. Moreover, the general constitution of the Trusts, and the work that they have been doing so far, are not such as to encourage the belief that they will solve the housing problem in Indian towns and cities. The cost of maintaining a staff of expert architects and engineers, and a big office establishment, entails an expenditure which even a growing industrial or manufacturing city cannot face without difficulty.

A Wrong Policy.—Again, the policy of the Trusts seems to have been confined, till very recently, and even at the present time to a great extent, to the beautification of the city, and sometimes to ambitious schemes of development. The better parts of the city have received attention out of all proportion to their needs, while the poorer quarters have received scant attention at their hands, even in matters of sanitation and conservancy. In fact, the Trusts have followed a wrong path. Rather than spend their money and energy in reducing the dirt and squalor of the worst quarters, they have generally addressed themselves to the improvement of the better ones, in order to earn cheap applause from the upper and the middle classes, who alone are generally vocal.

Improvement Schemes—a Cause of Congestion.—Moreover, the Trusts have failed to realise the necessity of providing adequate accommodation in advance to the people whom they seek to dispossess of their homes in order to carry out improvement schemes. Thus congestion invariably tends to increase in the immediate neighbourhood of an improvement scheme. The evils arising from the lack of such forethought have been emphasized

times out of number by civic authorities. It is a pity that neither the Improvement Trust of Bombay, nor those of Calcutta, Cawnpore, etc., profited by the experience of other countries; and have to face the queer phenomenon that their clearance schemes serve only to intensify and complicate the problem which they intend to solve. It cannot, therefore, be too strongly emphasized that improvement schemes in the city areas should be taken up only after, and not before, providing sufficient accommodation for the displaced population, either in the city itself or in the suburbs. As it is, the city is generally too full to allow suitable accommodation for its increasing population, and, accordingly, the only way to secure immunity from insanitary and congested conditions is to develop the suburbs. In short, the improvements should proceed from the outskirts to the centre, and not vice versa. With this object, the provision of cheap and efficient transit facilities are probably the first things which should engage the attention of the Trusts.

Divergent Policies of Trusts.—But the policy of the Trusts has been different in different cities. In fact, there has been little co-ordination between the few Trusts that have existed in India. Trusts in the same province have been following divergent policies, not mainly on account of varying needs. Thus, while the Lucknow Trust has been interesting itself in clearing up congested localities and in providing model houses for different classes of people, the Cawnpore Trust has kept itself scrupulously aloof from all such activities, although the latter badly needs the help of the Trust to provide the growing industrial population with sanitary house accommodation, and to improve the dirty and congested surroundings of the labour *bastis*. 'The complaint is generally made,' observes the U.P. Improvement Trusts Committee, 'that the Trust has so far done nothing directly to improve the sanitary conditions of the town by taking up insanitary enclosures and other plague-spots, clearing them and laying them out on sanitary lines,' and it is urged with much force that anything well done in this connection would have very much increased public interest in, and sympathy with, the Trust, and improved the relations between the Trust and the municipality.¹

Rejection of Government Proposal for Industrial Housing.—In fact, it appears that the U.P. Government made a

¹ *Report of the Town Improvement Trusts Committee, U.P., 1924, p. 54.*

proposal for the improvement of Cawnpore as far back as 1908, and it is disappointing that so little has been done to carry it out. The members of the committee inspected some of these squalid places which abound in this congested city, and were deeply impressed with the imperious necessity of their improvement. In fact, as the committee has clearly shown, the Government itself had suggested to the Trust in 1922 'that definite industrial areas should be laid out in which provision should be made for the housing of the industrial classes on a healthy site, well-drained and well-laid-out, that the erection of the houses should, as a rule, be left to the people who are to inhabit them, advances being provided where necessary and building materials at easy rates, and that Government would advance money to the Trust on easy terms for this purpose.'¹ Unfortunately, however, the Cawnpore Trust did not grasp this splendid opportunity to ameliorate the conditions of the poor people, and replied to the Government that the Trust did not think that ordinary labourers would build houses for themselves.

Lack of a Systematic Programme.—To add to such failings, the Trusts have generally bestowed little thought on the proportion between the cost and its utility. No civic survey has been undertaken, nor any improvement schemes outlined, according to which systematic betterment could have been undertaken. What has been done in this respect has been more or less sporadic and fragmentary, and no attempt has been made even to follow the recommendations of those reports of surveys, which have been undertaken by experts invited to deal with special problems of congestion, traffic, sanitation, etc., in selected areas. The fates of the Burra Bazaar Improvement Scheme, for a part of the city of Calcutta, and the Lucknow Civic Survey Scheme, designed by no less a person than Prof. Patrick Geddes, after careful and systematic inquiries, are instances in point.

Irresponsibility in Dealing with Congestion.—In the matter of housing the working-classes and the poorer people, the record of the Trusts is very poor indeed. In the first instance, as has been pointed out above, the Trusts have been trying to shirk this important responsibility. The little that has been done in some places has been done first for the middle and upper classes, and then

¹ *Report of the Town Improvement Trusts Committee, U.P., 1924, Section 49, p. 26.*

for the Anglo-Indian community and the native Christians, who had their claims heard. The general plan of dealing with the worst areas, that is, those inhabited by the poorest classes, which the Trusts have almost universally followed may be described briefly. First, the areas for such improvement were selected and were followed by wholesale evictions under the Land Acquisition Act, thus depriving a section of the people of such scant accommodation as they already possessed. In some cases temporary house accommodation was provided for the people thus dislodged, while in others nothing was done. Then followed the wholesale demolition of those condemned houses, leaving the work of reconstruction to take care of itself. The result has been that overcrowding has increased, and fresh buildings had to be marked out as unfit for human habitation.

The Activities of the Bombay Trust.—The reports of Improvement Trusts give very scant information with regard to their re-housing and dis-housing operations. In fact, with the exception of the Bombay Trust, which has given up-to-date statistics of its work in different fields, no other Trust has cared to take the public into its confidence with regard to its work. The information available from the report of the Improvement Trust of Bombay for 1922 shows that the Trust demolished no less than 25,028 tenement houses from 1898 to 1922, and provided only 23,356 tenements up to that time. Thus, in the 25 years of its existence, the Improvment Trust of Bombay helped to increase congestion to the extent of decreasing the number of tenements in the city by 1,672. If we go into details, we find that the majority of those adversely affected by the demolition are the poor people and the working-classes, living in one- and two-roomed tenements, while the

	ONE- ROOM	TWO- ROOM	LARGER	SERVANTS' QUARTERS	TOTAL
No. of tenements demolished	18,444	4,017	2,567	..	25,028
No. of tenements provided	16,125	2,107	3,236	1,888	23,356
Balance—against or in favour of the Trust	.. -2,319	.. -1,910	.. +769	.. +1,888	.. -1,672

N.B.—The total number of tenements provided include those *chawls* also which the Trust constructed for private employers of labour, and those which were constructed by employers on land leased by the Trust.

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majority of those benefited by the construction are the well-to-do people and the middle classes living in bigger houses.

The table at the foot of page 162 gives the actual figures on 31st December, 1922.

It is satisfactory to note in this connection that the Improvement Trust had made up this balance by the end of the year 1924. The chairman of the Trust, Mr. Delves, in an interview during my tours, told me that the Trust had then a small balance in its favour, and that its operations at the close of 1924 stood roughly as follows:

	ONE- ROOM	TWO- ROOM	LARGER	SERVANTS' QUARTERS	TOTAL
No. of tenements demolished	21,150	4,485	2,919	..	28,554
No. of tenements provided ..	23,737	2,210	3,494	1,998	31,439

The Improvement Trust Chawls.—Coming to the *chawls* which have actually been constructed by the Trust, it must be noted that almost all of them are two- and three-storied buildings. They are faithful imitations of typical Bombay slums, having rows of single-room units separated by a closed narrow *gullie* or verandah, and have been very aptly described by the well-known Labour leader of England, Col. Wedgwood, as 'Standardised slums.' In justice to the Trust it might be said that the structures are *pucca* and the rooms a little bigger than are found in the ordinary private *chawls*, but the method of construction does not allow sufficient air and light to the inmates. As for rents, they vary from Rs. 3-10 to Rs. 7-3 per mensem per room in the older *chawls*, because they are subject to the Rent Restriction Act, but rooms in the newer *chawls*, i.e. those constructed in or after 1922, and to which the Rent Restriction Act does not apply, are rented at Rs. 13-5 per mensem. It may be mentioned here that rooms in the new *chawls* are exactly similar to those in the older *chawls*. The result is that the *chawls* are grossly overcrowded. We have personally found many rooms in these *chawls* accommodating two and three families each, while three to five lodgers in a room rented by a family is almost universal. The superintendents admitted that that was so, but said that it was impossible to check it, and that it would be very hard upon the poor people if it were, because they could not afford to pay such high rents. So inadequate was the response of the Trust to the growing

need of house accommodation in the city, and the criticism, with regard to its wastefulness and top-heavy expenditure, has been so strong that the Government decided to abolish it, and has vested the functions in the Municipal Corporation, which took over charge early in 1926.

The Calcutta Trust and Housing.—Coming to the work of the Improvement Trust of Calcutta in the sphere of housing, we find that it has constructed three blocks of *chawls* in the Wards Institution Street for clerks, schoolmasters, and other persons of limited means; 39 houses in the Karbala Tank Lane, carrying a rental of about Rs. 100 per month, for the use of lower middle class people, and some tenement houses, on the east side of Bow Street, capable of accommodating about 500 Anglo-Indians, who were dispossessed of their lands by the Trust. Even these suffer from serious defects of design and construction. They have accordingly been unpopular among the people, and recently the authorities have themselves admitted the failure of these schemes. So far as the working-classes and the other poor people are concerned, all that the Calcutta Improvement Trust has done is to purchase three plots of land, two in Manicktola and one in the Paikpara Road, in the Cossipur Chitpur Municipality, which could be sold or let on long leases to those of the poorer people who had been ousted from their homes by the Trust. These have also been leased by middle class people, because the poor labourers could not afford to pay the price demanded; and the poor creatures have been forced to cram themselves into localities which are not better from the point of view of congestion than the places from which they had been ousted. Thus the action of the Trust has helped, rather than arrested, the growth of congestion and squalor in the city; and an ever increasing number of buildings are becoming unfit for human habitation. The development of the suburbs, which could afford cheap and suitable accommodation to the poor and the middle classes, displaced by the operations of the Trust, has not been attended to. The lack of proper transit facilities, in the shape of tube or overhead railways, has been another great obstacle in the way of their development.

The Improvement Trust of Rangoon.—The Rangoon Improvement Trust has similarly confined itself to the construction of dwelling houses for the middle and the well-to-do classes, and has passed over the working-classes on the comfortable plea that land in the city was too dear for workmen's dwellings. Even in the

suburbs, where the Trust proposes to house the poor in homestead dwellings, nothing has been done beyond the purchase of some land, the laying out of some roads and making sites available for the people, if they want to build houses on their own account.

The Lucknow Improvement Trust.—The Lucknow Improvement Trust is another body which has been actively interesting itself in the provision of house accommodation for its citizens. Lucknow, however, is not a big industrial city like Bombay, Cawnpore, or Ahmedabad. But the growing importance of the city, as the destined capital of the United Provinces, is attracting to it large numbers of people for employment in the daily increasing offices, and for purposes of education, trade and commerce. Accordingly, the rents, which have already been higher than in any other town in the province except Cawnpore, are rising still further. As usual, private and co-operative buildings have not been able to cope with the demand, and the Trust has rightly been trying to do its bit. The Trust has been building model houses in several quarters—houses which, in the opinion of the Trust, are sanitary and provide the greatest amount of comfort with the least possible cost. Sites have also been acquired, to be leased out to people for the construction of houses according to their own taste. The more congested places have been opened up by laying out parks and open spaces in their midst, and a suburb—Butlergunj—is being laid out in the north-east of the city for further expansion. Here blocks of two, three and four houses, often with a common enclosed compound, are being constructed on up-to-date lines. Sites for parks, open spaces, schools, hospitals, etc., have been carefully marked off, and leases are being given to all grades of persons to construct their own houses under the general supervision of the Trust. Roads have also been laid out and wells provided. But the blocks of model houses, which the Trust has constructed, are in some cases not adaptable to the conditions of the class of people for whom they are intended.

Defects of the Model Houses.—The windows, which serve as ventilators also, are very low. They interfere with the privacy of the rooms and admit cold blasts during the winter season. They are accordingly kept permanently closed, thus leaving the room dark and ill-ventilated. The kitchen rooms are too small for Indians, who generally take their meals inside the kitchens, and accordingly serve as stores and places where all sorts of rubbish are

collected. In some houses the doors to all the rooms are arranged one behind the other, so that the house loses all privacy. The absolute want of any drainage system in an Indian quarter, where a large quantity of dirty water is bound to be spilt at all times, is almost inexcusable. The result is that a large quantity of mud and putrefying water is always collected behind the rooms, and renders the whole locality insanitary. Again, the whole place is situated at a very low level and many houses have no plinth, so that the rooms are damp. During the floods, in 1923, the water inside the rooms was breast-deep. Too much has been spent on *pucca* buildings, while other necessities like wells have been insufficiently financed. If the buildings had been half *pucca* and half *kachcha*, i.e. if only the floor and the lower parts of the walls had been *pucca*, in order to give the houses some stability and to keep them free from rats, etc., the Trust could easily have reduced the rents and carried out other necessary improvements, like drainage, water-supply, light, etc. Most of the defects enumerated above could have been eliminated if the officers of the Trust had been conversant with Indian modes of life and their likes and dislikes. Thus the general charge of wasting money on expensive foreign experts, not quite familiar with Indian conditions and requirements, in preference to cheap and useful native talent, holds good in this case also.

The Cawnpore Trust and Housing.—No other Trust in India has undertaken the construction of houses for the people to any appreciable extent. As has already been pointed out, the Cawnpore Trust has been against the proposal that it should build houses, since, in its opinion, the working contractors could put up the buildings required much more cheaply and satisfactorily. With regard to some of the houses which have been built according to this plan by contractors, from money lent by the Trust, the Improvement Trusts Committee has rightly pointed out: 'With regard to those built from the loan money, they are not workman's dwellings at all, but are let to middle class people; while those which do come within this description are wretched, low hovels of one tiny room and verandah, badly built and most insanitary, and still let at Rs. 2-8 per month. They do not, moreover, conform to the municipal bye-laws, and it seems extraordinary to us that such quarters should be erected out of a loan made by the Trust and with the sanction of the Municipal

Board.'¹ The only other positive work of the Trust in this sphere has been the construction of about 150 *kachcha*, two-room, temporary, tiled houses for the people dis-housed at Khallasi Lines.

The Allahabad and Calcutta Trusts have contented themselves merely with the provision of some sites for the people for the purpose of housing. They have scrupulously kept themselves aloof from actual construction, beyond providing some temporary dwelling places to some of those whom they dispossessed by their operations.

The Apathy of the Rangoon Trust.—The Rangoon Improvement Trust, again, has been subjected to very considerable criticism for its apathy towards the needs of the poorer people and the working-classes in the matter of housing. It has been complained that the Trust has confined itself to building new houses for the comparatively better class of people, and to the improvement of the general appearance and beautification of the city, at the cost of the poorer people. Sometimes criticism has been very bitter, thus it has been said that the Trust, by its ambitious, heavy and avaricious schemes of development, is practically asking the poorer classes of people to go into the streets. . . . The Trust is tending to make Rangoon a very picturesque and sanitary place, and a very ideal place for people to live in who have a very large capital at their disposal. But if the Development Trust went on the way it was going, they would have a beautiful Rangoon without anybody living in it. Again, it has been said that the Trust has not raised its little finger till now for removing the congestion in the city. Although much of this criticism is exaggerated, it is a fact that the Rangoon Improvement Trust has not been doing much to relieve overcrowding in the poorer quarters of the city, while they have been finding money to build new quarters for the better class of people. Because the Trust thinks, and rightly too, that homestead dwellings are not possible in the city proper, on account of the growing demand for land, the Trust has kept aloof from any kind of housing whatsoever for them. What it has been doing instead is to provide sites for dwellings in the suburbs. The Trust, however, admits that *chawls* and tenement houses can be profitably built in the city, but it has been neglecting that work also, because it thinks that the Burmese are passionately

¹ *Report of the U.P. Town Improvement Trusts Committee, 1924, Section 48, pp. 25-26.*

attached to homestead dwellings, and no amount of city attractions would reconcile them to the drawbacks of living in tenement houses. Even so, it may be contended that tenement houses would relieve congestion to a great extent, because the large number of outside labourers who live single would prefer the tenement houses; and many Burmese would reconcile themselves to the inevitable, as workers have done elsewhere.

The Failure of Trusts.—Having reviewed the work that the Improvement Trusts have been doing to relieve the housing shortage in India, let us try to find out what modifications of their functions, or the method of their work, could make them fit to discharge the important duties which have been entrusted to them at a reasonable cost. It is an incontrovertible fact that the work of the Improvement Trusts has so far been disappointing, and the fact has been recognised even by Government, in practice if not in theory. The creation of the Development Directorate in Bombay, at the head of the Trust, and, more recently, the transfer of its management to the Bombay Municipality; and the institution of an enquiry into the working of the Trusts in the United Provinces, which frankly admits its disappointment at the work so far done by the Trusts, are facts which prove the statement.

Reforms Suggested.—As is common with government departments in India, the Trusts have cared more for show than for concrete things. In other cases they have blundered because of a lack of proper appreciation of the point of view of Indians. What is needed, therefore, is to make the Trusts more popular on their advisory and deliberative side, to give proper representation to the interests likely to be affected, especially to the labourers and other poor classes, and to curtail expenses by reducing the number of whole-time and highly paid officials and establishment. The United Provinces Improvement Trusts Committee also recommends the reduction of administrative expenses and the abolition of the post of a paid chairman, chief engineer, etc. But it contends that the power of co-opting members to advise it in its work generally, or in the carrying out of any scheme, if liberally used, is an effective substitute for increased representation.

Reduction of Overhead Charges.—Among the permanent paid officials, an engineer and some assistants are all who should be needed. Architects, surveyors and other experts can be engaged in common by several Trusts, or their services borrowed from other

departments of government. On the other side, more money should be placed at their disposal to carry out development schemes and to effect temporary and permanent improvements throughout the areas under their jurisdiction. All the Trusts should be advised to undertake detailed surveys of their district and prepare practical schemes for improvements, in order of their merit and urgency, according to which systematic and determined action should be taken. The building and other sanitary bye-laws should be made more stringent, and, above all, be strictly enforced. All this requires comprehensive legislation, which should be undertaken as early as possible. Besides, other industrial and commercial cities, like Ahmedabad, Karachi, Sholapore, Poona, Nagpur, Madras, Howrah, etc., which present similar problems on account of their rapid expansion and development as centres of industry and trade, should have Improvement Trusts to look after their local problems. Moreover, municipal councils should be entrusted with the work of the Trusts in all towns where an Improvement Trust does not exist. As in England and America, the Improvement Trusts and municipal councils should be empowered to float loans, under due restrictions, for purposes of city improvement and housing.

CHAPTER XII

EMPLOYERS AND WELFARE WORK

The Absence of Personal Touch between Employers and Employees.—With the development of large scale production and the factory system in India, the personal relationship between the master and the workman, characteristic of the earlier systems of production, where the workman apprentice used to work with the artisan at his house under more or less homely and human surroundings, has been fast disappearing. In the present complex organisation of production, the joint stock company has generally superseded the individual employer, and even where the latter has survived a large and varied class of overseers intervene between him and the workmen. The personal element under such circumstances could no longer exist, and all that the company or the individual employer could do was to provide the work-people with some amenities of life. But the growing competition between producers in the same country and those abroad, and the race for the manufacture of cheap goods, cost all the energy and ingenuity of the employers towards decreasing the expenses of production and the overhead charges to the utmost limit, rather than towards the betterment of the conditions of their employees. While the artisans, deprived of their custom by the glut of cheap machine-made goods in the market, and swelled by the increasing number of workmen deprived of their employment by the increasing invention of labour-saving devices, and reinforced periodically and in increasing numbers by agricultural labourers, who cannot get even a living wage in the villages on account of the increasing pressure on the land, have become more and more dependent on the capitalist for their bread. The gross illiteracy among the masses, lack of organisation and cohesion among them, and their extreme poverty, have made their dependence on the factory employer more complete and abject.

The Difficulties of Indian Employers.—The employer himself has been faced with a fierce competition from organised, well-informed and resourceful Western manufactures, over and above the numerous disabilities and shortcomings which are common to

all new enterprises. To crown all these, the encouragement from the Government has been step-motherly till very recently. He has accordingly not been in a position to give any adequate thought to the comforts and well-being of the workmen. But it is being realised slowly that the welfare and contentment of the work-people may not be looked upon merely as a humanitarian and charitable proposition. It is even an economic and profitable investment, for a contented, healthy and intelligent labour-force is a great asset to the employer, and is otherwise more productive than a shifting, ignorant and superstition-ridden mass. Far-seeing and enlightened employers have accordingly not only catered for the housing, education and recreation of their workers, but also welcomed organisation, self-consciousness and enterprise among them. Thus not a few mill owners provide well-organised, free medical attendance for their employees, well-equipped crèches, where female workers can leave their children under the care of nurses during the time they are engaged in the factory, maternity benefits during and after confinement, and pensions and presents for continuity of work.

Welfare Work in the West.—In Western countries, particularly the United States of America, England, and Germany, employers have helped materially to better the conditions of their workmen. Examples are not rare where generous-hearted capitalists have spent their accumulated fortunes to provide homely and comfortable conditions of work and living for their employees; and the numerous garden cities and industrial suburbs, some account of which is given separately in this monograph, scattered in Germany, England, America, and France, serve to remind us of their high-placed benevolence, sense of humanity and fellow-feeling.

State and Industrial Welfare.—Welfare work must always be regarded, as Proud very aptly puts it, as 'voluntary effort on the part of employers to improve, within the existing industrial system, the conditions of employment in their own factories.'¹ Although the Factory Acts in India, as elsewhere, have laid down certain wholesome rules as regards working conditions and mill surroundings, and have also made a certain measure of welfare-work compulsory on the part of the employers, it still depends

¹ Proud, *Welfare Work*.

in a large measure on the broad-mindedness and generosity of the factory owners. The limitation of the hours of work to eleven per day and sixty per week ; the prohibition of night work for women and the employment of children under 12 in factories or mines ; and, more recently, the passing of the Workmen's Compensation Act, have made a fair amount of welfare work compulsory in India. But housing, education, recreations, medical aid, and a host of other beneficial activities among the labourers, depend almost entirely on the generosity of the Capitalists. In fact, welfare work loses all its significance and contradicts itself if it is not voluntary or spontaneous. This, however, does not in any way minimise the importance or utility of state interference, in a limited way, to secure humane conditions for labourers working under greedy, shortsighted and rapacious employers. In general, however, the force of public opinion, competition, and ultimate economic motive may themselves be left to do the work of compulsion. Particularly in a country like India, which is more or less at the threshold of industrial development, and where the industrialist is fettered with so many obstacles, compulsion may prove to be 'the last straw on the camel's back.'

Employers and Housing in India.—It is, however, gratifying to observe that some employers in India, even at this early stage, have realised the economic advantage of providing their workpeople with accommodation near the works. Employers in Bombay, Madras, Sholapore, Cawnpore, the jute mill towns, and the mining areas, are displaying a greater and greater tendency to undertake housing schemes for their labourers. The obstacles caused by want of adequate space near the factories in bigger cities, and the high price of land, are also being sought to be overcome in certain places, by buying land at some distance from the factory and connecting it up by suitable transit arrangements for the benefit of the workers. But such cases are as yet few and far between and are almost restricted to the railway companies, who have constructed good houses for various grades of workers engaged by them, on a garden city plan, at Lillooah, Kanchrapara and Kharagpore, near Calcutta ; at Alambagh, near Lucknow ; and also at Bombay. In Madras, the Buckingham and Carnatic Mills have laid out two villages for their workmen ; while in Nagpur also similar schemes are afoot on behalf of the Empress Mills, owned by the Tatas ; but no attempt is there being made to tackle the question of transit, so that workmen have

to walk a couple of miles, and sometimes more, to and from their work.

It is true that some employers in the industrial towns have provided some kind of house accommodation for their workmen, but both the quality and the number of these dwellings are unsatisfactory. Few companies in India provide house accommodation for more than half of their employees, practically none for all. In not a few cases, on the other hand, this humanitarian side of their work has been supplemented by profit-seeking tendencies. Most to blame in this respect are mill owners in Ahmedabad. Here are thriving *chawls* or coolie lines, whose condition no vivid description or graphic pen-picture can convey to the reader. A good majority of such houses are owned and let by the employers themselves. The one-room tenement is the standard of workmen's dwellings, whether one goes to Bombay or Calcutta. Here the excuse is the want of space and the prohibitive cost of building. In the jute mill towns and the coal mines, where also the single room is the standard, the excuse is the absence of demand and the low standard of living of the average workman. It may, however, be admitted to the credit of the employers, that, bad as the houses constructed by them are, they are on the whole better than those in the private *bastis*, where a majority of the employees have to find accommodation.

Mill-hands and Mill-houses.—The workmen, as a rule, do not like to live in dwellings erected by the employers, as it results in loss of liberty of action, and ejection in the event of a strike or dismissal, so that the loss of employment does not only mean the loss of bread, but also the loss of home and comrades. Greatly as the workmen value their freedom of movement from one place to another, or from one occupation to another in the same town, if it is remunerative, and view with suspicion every interference of the employers in their domestic affairs, circumstances are compelling them to fall back on the mill owners even for their residence. In fact, we have met with few cases, if any, where employers have vacant houses or where there are not large numbers of people ready to rent a house as soon as it falls vacant. It is true, however, that the private builder is able, almost universally, to command a considerably higher rental for tenements much worse than those provided by the employers, because there is a very acute shortage of dwelling houses in almost every industrial town at the

present time, and not because the labourers are not prepared to live in coolie lines, or *chawls*, provided by the employers, as some writers on the subject have emphasized.¹

The Pressure of Social Service Bodies.—Although in many cases the initiative for the provision of houses and other amenities of life for the work-people has come from the employers themselves on account of humanitarian motives, and not infrequently from a far-sighted vision of their own ultimate economic advantage by way of improved efficiency among the workers, the Press and public associations, like the Social Service League in Bombay, the Poona Seva Society in Poona, the Sanitary Association in Ahmedabad, the Y.M.C.A. in Nagpur, Cawnpore and Madras, and the Maternity and Child Welfare Leagues throughout India, have forced the hands of recalcitrant and perverse employers, by frequently and persistently drawing their attention to the gross evils arising out of the neglect of their responsibilities to their workmen, and hastened the pace of progress.

Coming to a detailed review of the work actually being done in different industrial cities by the employers for the welfare and comfort of their employees, we find that in the centres of the cotton industry, in western and central India, as also in Madras and Cawnpore, the mill owners are doing good humanitarian work and trying to provide a higher minimum of comfort and other amenities of life than those enforced by the Factory Acts, or those obtaining in the jute mill towns and mining centres in eastern India.

The Currimbhoy Ebrahim Workmen's Institute.—In Bombay, Messrs. Currimbhoy Ebrahim & Sons, Ltd., and Messrs. Tata Sons, Ltd., each owning a large number of cotton mills, have opened workmen's institutes, under the direction and management of the Social Service League, Bombay, for the benefit of their employees. The former, which comprises eleven mills, have got their headquarters at Parel, in the midst of the mill population, which has brought within its sphere about a quarter of over fifteen thousand labourers under the employ of the company. Several primary and English schools, both day and night, for children and adults—males as well as females—are maintained. The

¹ C. F. Burnett-Hurst, *Housing and Labour in Bombay*, p. 62.; D. F. Curjel, *Women's Labour in Bengal Industries*; R. K. Mukerji, *Comparative Economics*, Vol. 2.

total number of students on the rolls is about 500, and the average attendance 300. The education imparted is both vocational and technical, where sewing, knitting, gardening, music and drawing are taught among numerous other useful arts. Libraries and reading rooms of vernacular books and papers are maintained, and lectures and debates on useful subjects, such as co-operation, temperance, hygiene, etc., are organised. Frequently such lectures are illustrated by magic lantern slides, which provide both recreation and education to the workmen and are very popular.

Credit Societies.—Among the economic activities, co-operative credit societies are the most important. There were, in all, about 30 big and small societies in 1922, with a membership of 1,220, a share capital of Rs. 10,624-11-6, and a reserve fund of Rs. 3,370-9-4. The value of each share is Rs. 10, payable in a lump sum or by monthly instalments. Every member is eligible for loans, at 18 per cent interest, up to five times the value of his shares, with a maximum of Rs. 100, repayable in small monthly instalments. The institute is helping the society, with deposits totalling about Rs. 10,000 and loans amounting to over Rs. 43,000. There are three purely women's societies which have been working very well, and the organisers find that the dealings of women workers are most honest and straightforward. Thus a section of the people have been saved from the clutches of the Punjabee or the Marwari money-lenders, who charge 75 to 300 per cent as interest from the work-people, while habits of thrift and economical living are inculcated into the minds of the labourers. Co-operative stores and savings banks have also been organised.

Baby Clinics and Medical Aid.—Besides these, various kinds of recreational work, including a well-equipped gymnasium, a theatrical hall, meeting places for social clubs, etc., are provided; while sports, excursions and other activities are frequently organised for the benefit of the workmen and half-timers. A well-equipped crèche, with cradles, flower-pots, pictures and toys, under the charge of five Indian nurses, looks after about 57 children while their mothers are working in the mills. The children get a daily bath, free milk and biscuits, and are dressed in clean clothes. Medical aid is given free to all workers, and a whole-time doctor also visits patients who are seriously ill in their homes. Besides, maternity benefits are given to women workers who have been in the employ of the mills for at least a year, in the

form of two months' wages, one month before and one month after delivery.

Works Committees.—But more than all these have the Works Committees, which have been organised by the Institute, helped to establish harmonious relations between the management and the work-people. Here the representatives of the workers get an opportunity to bring to the notice of the management their grievances or difficulties, and discuss the same. As a result of such informal discussions, several beneficial schemes have been inaugurated.

The Tata Sons Workmen's Institute.—The Tata Sons Workmen's Institute, which was also started in November, 1918, has been carrying on similar activities from its four centres at Dadar Road, Prabhadevi Road, Lower Parel and Kurla, among the employees of the Tata Mills, the Standard Mills, the David Mills and the Swadeshi Mills respectively. Here also thirty co-operative credit societies are working, with a membership of over 2,000 employees, a share capital of about Rs. 20,000, and a reserve fund of a little below Rs. 7,000. In 1922, over Rs. 80,000 were advanced to about 1,600 applicants, and the interest realised was Rs. 6,883-6-7. The mills advanced over Rs. 22,000, without interest, for the work of the societies. Over and above the free medical aid and crèche, co-operative stores, savings bank, free education, recreations, works committees, etc., which are all attended to more or less on the same lines as in the Ebrahim Currimbhoy Institute, the Tatas maintain a cheap grain shop and a cheap tea shop for the benefit of their employees. They also pay provident fund benefits, compensation for accidental injuries and sick benefits, over and above the maternity benefits as paid by the other mills to their workmen.

Other Welfare Work in Bombay.—Besides the work of these two groups of about 15 mills, very few other employers have cared to look after the welfare of their employees to any extent. The Spring Mills have built about 14 blocks of *chawls*, which contain well-ventilated rooms, of the size 10 ft. by 12 ft., with a small side room, 10 ft. by 3½ ft., and others of the size 10 ft. by 10½ ft. The former are let at concession rates of Rs. 2-12, Rs. 3-4, and Rs. 3 per month, and the latter for only Rs. 2 per mensem to their employees. Similarly, the Kakomi Mills at Nayagaum, the Dinshaw Petit Mills, the Textile Mills, the Sasoon Mills, etc., provide *chawls*

for a part of their workmen. The last one, however, is the only mill, besides the Spring Mills, which lets out the *chawls* at a concession rate and provides decent accommodation to the labourers. The rest run them on a business scale, and provide dirty and dingy rooms. The employers' *chawls* are almost universally of the standard Bombay type, as described in a previous chapter, consisting of long rows of single-room units, either placed on both sides of a long, narrow, closed verandah, or back to back. The rooms are, accordingly, insufficiently lighted and ventilated, and, above all, are let at very high rents. The surroundings are generally dirty and stinking, and the appearance uninviting. The Improvement Trust has made an offer to construct *chawls* on behalf of the mills for their employees on easy terms and on credit. But very few mills have taken advantage of the same.

Binny & Co., Madras : Educational Work. — But the credit for pioneer work, with regard to housing and other welfare work for the workmen, is really due to Messrs. Binny & Co., Ltd., Madras. The educational and medical work for the employees of the Buckingham and Carnatic Mills, under the management of the company, was set on an organised footing as early as 1904, and has since steadily grown, so that in 1923 upwards of 16,000 pupils, the children of the work-people, half-timers, and adults attended the schools every day. The school is housed in a spacious building having more than 23 class-rooms, a dispensary, a gymnasium and extensive playgrounds for football, hockey, cricket, badminton, etc. A technical school, where training in tailoring, carpentry, smithy, fitting, turning, weaving, etc., among other arts, is given; and a school for small children, the sons of the work-people or the little brothers of the half-timers, is also attached, while the school building is used as a night school also for adult workers. Almost all the half-timers, about 900 out of a total of nearly one thousand employed in the mills, attend the school, where there are arrangements for the teaching of gardening, hygiene and moral principles, over and above the ordinary subjects. Over 350 adult workers take advantage of the night school. Besides these, commercial classes for training in typewriting, etc., and a nursing class, where nurses and women teachers take care of young children, teach them to be neat and tidy, and keep them amused with toys, games and songs, are also provided. School boys are provided with light refreshments during the interval at a nominal cost, while

mid-day meals of curry and rice are provided free of cost to about 40 per cent of the half-timers, who live over two miles away from the school. Sick and weak boys receive a better quality of food on certification by the mill doctor. Sufficient bathing and washing places and *chhatrams*, where the work-people can cook and eat their food during the recess, are provided, while fully-equipped dispensaries are located in both the mills. Sick workmen, when certified by the mill doctor, receive more than half their daily wages as allowance.

Allowances.—Besides, the company gives perfect attendance bonuses,¹ gratuity funds² and accident compensations³ to their employees. Fifteen days' privilege leave per annum is allowed to workmen after five years of continuous service. Compassionate allowance is given to sick or weak workmen for a maximum period of 20 days.

The Welfare Committee.—All welfare work and other activities of the work-people, both inside and outside the mills, are centered in the welfare committee, which consists of 22 members elected by the workmen and four nominated by the management, besides the two managers and the joint Principal of the schools, with the Managing Director as the president and the Superintendent of Welfare Work as secretary. Fortnightly meetings of the committee are held; and this has proved to be a very efficient means of removing misunderstandings between the employers and the employees, and has brought about much closer association of the labourers with the management, so that both work together for their mutual benefit, and, by the promotion of good-will and sympathy, help to avoid those unfortunate disputes which at times mar the relations between employers and workmen. Over and above the promotion of good-will and understanding between capital

¹ A free gift of Rs. 2-8 for every six months of continuous attendance, and an additional Rs. 7-8 for eighteen months of continuous attendance.

² The company contributes 5 per cent of the total wages earned by each employee every half year, and the accumulated amount is available after ten years' continuous service; for seven years' continuous service after this period the contribution is raised to 7-5 per cent, and for five years' further continuous service after that to 10 per cent of the total wages earned. If the employee dies within or after that time, the amount accumulated in the gratuity fund is made over to his heir or nominee.

³ Full wages to employees meeting with an accident, from whatever cause, for the period that they are disabled.

and labour, the welfare committee has proved most useful in establishing an *esprit de corps* among the workers themselves, which is most valuable.

Housing Arrangements.—But more important than all these activities has been the inauguration of a housing scheme for the accommodation of the work-people, on sanitary and up-to-date lines, near the works, which the company undertook in 1914. There are at present two villages attached to the mills and situated close to them. Except a few houses of a better type for artisans and low-paid clerks, the majority of the houses are meant for ordinary unskilled labourers, who cannot afford to pay high rents in the city; and are let at Re. 1-8 per mensem only. The company has recently purchased some more plots, and accordingly some more villages are under construction. In each village there is a committee, elected from among the residents, which settles petty quarrels and represents the needs of the residents to the authorities. Co-operative stores and cottage industries have also been introduced for the benefit of the people in the villages. The medical staff of the mills now and then visit the villages and look after the sick and the sanitation of the localities.

Corruption in Workmen's Villages.—A large number of women, who are not related to male workers, live in these villages and associate with resident labourers. A large amount of corruption is thus rampant, which gives cause for occasional quarrels. On the representation of village committees, the authorities have made a rule that only lawfully married women would be allotted houses in the villages in the future, and are persuading the residents to marry such women as are already living with them.

The Empress Mills, Nagpur.—In Nagpur also extensive welfare work is carried on among the work-people on behalf of the Empress Mills, which are under the management of the Tatas. The mills retail the necessities of life, including food-grains, pulses, spices, etc., to their workmen on the credit system at very cheap rates. The prices of most of the things so retailed are almost half those prevalent in the market.

The table at the top of page 180 shows the loss sustained by the mills on the sale of grains, etc., in the five years ending 1922.

Faulty or stained cloth was retailed to the employees at about 40 per cent discount.

Educational Work.—The mills contribute over Rs. 2,000 per

YEAR	AVERAGE NO. OF OPERATIVES ON THE ROLLS	TOTAL LOSS FOR THE YEAR	LOSS PER EMPLOYEE PER YEAR
		Rs.	Rs.
1918	8,381	59,101	10.5
1919	8,128	349,895	43.0
1920	8,295	536,220	66.5
1921	8,191	459,299	56.0
1922	8,419	241,720	28.5

annum to the schools where workmen receive education, over and above the maintenance of primary classes for small boys; and classes for teaching, reading, writing, needlework, etc., to half-day girl workers. The children in these classes receive slates, pens and study books free, while money prizes for regular attendance are also given. The girls are allowed to keep for their own use the bodices and jackets which they make out of cloth supplied by the mills. About a hundred children avail themselves of these conveniences.

Medical Aid and Baby Clinics.—Free medical aid to the employees and their relatives is given in the mill dispensaries under the supervision of the medical officer of the mills and a lady doctor. The average daily attendance of patients at the mill dispensaries is over 200, and the company spends about Rs. 40,000 annually. Two crèches are also maintained in two of the mills for the babies of the women workers, and about a hundred babies are looked after by Christian nurses under the supervision of the mill's lady doctor. The crèche buildings are kept neat and clean, and good attention is paid to the feeding, washing and clothing of the babies. The crèches are, however, a little unpopular among the workmen, because of the social and religious prejudices against Christian nurses. In this, as in so many other matters, it is always wise to make a little concession to the customs and superstitions of these ignorant people, because on them depend to a large extent the utility of all welfare activities.

Allowances.—Since 1917 the company has also been giving scarcity and other allowances to all grades of employees, which have varied from 10 per cent to over 60 per cent of the wages. Accident compensations, pensions, and provident fund benefits also exist, but for the latter only workmen who have put in at least 20 years of service are entitled. Maternity benefits are

paid to women workers who have put in at least eleven months of service at the mills, in the form of two months' wages after confinement.

Other Amenities.—A co-operative credit society, with a membership of about 2,000, and with 4,745 subscribed shares of the value of Rs. 10 each, also existed in 1922. The society obtained Rs. 50,000 on loan from the company, and advanced loans to the extent of about Rs. 75,000 to the members. The general complaint of the workmen, however, is that in practice they do not get loans to the extent of more than the value of the shares held by them, while the better class of artisans and clerks are the persons really benefited by it. Over and above these benefits, the company finances a large amount of welfare work which is carried on by the Y.M.C.A., in the different labour *bastis* at Indora, Untkhana, Bankheda, Sitabaldi and Panchpali. The work includes games, picnic parties, lectures, cinema shows, social gatherings, etc., which are quite popular. The company has also been planning an industrial suburb on the garden city plan at Indora, about three miles away from the mills, where they are building *kachcha* huts of the cottage type for the workmen, and thus hope to provide sanitary and comfortable houses at cheap rates.

The Sholapore Mills.—At Sholapore also most of the mills are doing commendable work for the welfare of their employees. The Sholapore Mill, one of the oldest mills in Sholapore, has built a large number of quarters for its employees (1,723 rooms, accommodating over 2,000 people). It provides free medical aid, a maternity home, three crèches, night and day schools, a gymnasium, a library, and a reading-room. An employees' co-operative stores and a restaurant are also maintained. Besides, the company offers maternity benefits, in the form of three weeks' leave on half pay; provident fund benefits, to which the employee and the company each contribute one month's salary every year; and gratuity to old workers. A works committee also exists to ventilate the grievances of the employees and to promote harmony and mutual good-will between the management and the work-people. Several other mills provide similar facilities to their employees. The coolie lines, or houses, which they have built for their employees are particularly good, and are more scientific than those built in the other industrial centres of the Deccan.

Insanitary Housing at Ahmedabad.—In Ahmedabad,

however, very little welfare work on the part of employers is discernible. The houses and *chawls* which have been built by the mill owners are dark and dingy hovels, most of which are unfit for human habitation. Long, unsightly rows of back-to-back one-room tenements, of the size 8 ft. by 8 ft. or 8 ft. by 10 ft., are crammed together, regardless of health or sanitation, in order to utilise space to the utmost limit. Dirt, putrefying water and refuse materials, indiscriminately scattered about, add to the ghastliness of these habitations. Some of the mills, however, after repeated representations from the local labour union, no less than on account of other outside pressure, have begun to construct some good houses for their employees. The only other welfare work which one can see in Ahmedabad is free medical attendance and the provision of one or more crèches here and there.

The B.I.C. Settlements.—In Cawnpore, welfare work is carried on on behalf of the British India Corporation, which owns most of the local mills, under the direction of a special welfare superintendent and a separate department. Three labour settlements, or *bastis*, for the residence of the employees have been laid out, two in the Civil Lines ward for the employees of the woollen mills and the leather factories, and one at Juhi for the workers of the cotton mills. Here blocks of 8 to 24 one- or two-room units are built in rows parallel to each other. The walls are generally made of brick and mortar, and roofs of *pucca* tiles. Most of the rooms are small and ill-ventilated; and are, moreover, badly overcrowded on account of the increasing demand and the lack of suitable accommodation in the city. The Corporation, however, has been trying to secure more land in the neighbourhood of the mills so that they may erect further houses for the workmen. The Improvement Trust has been able to supply the same very recently and a new settlement is being planned on the site.

Education, Medical Aid and Crèches.—The Corporation maintains several boys' and girls' schools in the settlements, under the charge of qualified teachers, and quite a large number of children take advantage of them. Well-equipped baby clinics and dispensaries are maintained in the settlements and also in the mills, and medical attendance is absolutely free. A staff of midwives and trained Indian *dhais* are also maintained, who attend all labour cases in the settlements free of charge. Maternity benefits are given, in the shape of fifteen days' leave on full pay after delivery. Two

crèches are maintained—one at the Cawnpore Woollen Mills and the other at the Cotton Mills.

Other Welfare Work.—A co-operative credit society has successfully been working, to which the company has advanced Rs. 5,000 at 5 per cent interest. Six hundred and forty-five workmen of the woollen mills take advantage of this institution, which advances them loans to the extent of three times the salary of the individual at $12\frac{1}{2}$ per cent interest. In the year 1923, Rs. 73,702-12-0 were so loaned to the poorer people.

The mills also subsidise private clubs and other institutions which have been started by the labourers with the help of the Welfare Superintendent. Athletic clubs, wrestling clubs, a dramatic club, a reading-room and library, indoor games, etc., are among the most popular. A *panchayet* also exists in the settlements, where the representatives of the labourers sit with the Welfare Superintendent to decide minor quarrels among the residents.

No Welfare Work in Calcutta and Howrah.—In Calcutta, Howrah, and the jute mill towns which are scattered some eighty miles up and down the river Hooghly, very little welfare work among the workmen is visible. This is particularly deplorable when we find that the profits made by the jute mills are simply staggering.

The following figures summarise the balance sheets of the 79 jute mills which were working in 1925 in Bengal:¹

YEAR	LOANS	CAPITAL AND DEBTS (Crores of Rupees)	PROFITS
1915	38,000	36	60
1920	40,000	42	40
1924	50,000	52	25

The Profits of Jute Mill Owners.—In 1925, the reserve funds, which have come out of profits, amounted to 22 crores; and, if reserve funds and profits are added together, the total gains to the shareholders in the ten years, 1915 to 1925, reached the enormous total of £300 millions, or 90 per cent per annum on the capital. Commenting on the above state of affairs, the British Labour Party representative, Mr. Johnstone, who came to India in

¹ *Report on the Conditions of Jute Mill Workers in Bengal*, by T. Johnstone and J. F. Sime (Labour M.P.s), 1926.

1925 to enquire into the conditions of jute mill workers in Bengal, observes that, 'There are about three hundred thousand workers employed in the jute mills, which works out at approximately £1,000 per worker in ten years, or £100 per worker per year; and, as the average wage is about £12½ per head per annum, it means that the average annual profits are eight times the wages bill. Over and above these, enormous profits are made by the managing agents and a host of underlings, including *sirdars* and minor officials of the companies.'

Industrial Housing in Jute Mill Towns.—Most of the employers, however, have constructed a smaller or larger number of houses for their workers. These are not very much different from the *chawls* in Ahmedabad and Bombay or the barracks in Cawnpore. They are generally *pucca* ground-floor structures, but double-storied lines are not rare. The rooms are generally back to back, with frequently a front verandah, from two to four feet wide. The rooms are almost always ill-lighted and ill-ventilated, but the surroundings are generally clean, the outward appearance neat, and water taps and electric lights provided at different places in the lines. The rents are low, varying from As. 8 to Re. 1-8 per mensem, but the accommodation is generally very limited, so that overcrowding of the worst types is easily visible. In one of the mill lines at Titaghur, we came across several rooms, of the size 8 ft. by 8 ft., accommodating 12 to 15 people, three to four of whom were women. In such cases the work-people do not get space even to spread their limbs properly, and huddle together one over the other. The mills have generally no restrictions with regard to the number of people living in a room; and even if there are any on paper they are never enforced.

Medical Aid and Other Welfare Work.—Medical help is generally free in all the mills for their workmen, but in not a few cases a small charge is made for medicines. Here and there a school or two is provided for the education of the workers and their dependents. Some mills have also made market-places in the midst of the lines, but these always pay their way. At Naihati, the Gauripur Mills, which provide by far the best facilities for the workmen, also maintain a septic tank for the disposal of refuse, and separate waterworks.

Housing in the Coal Mines.—In the coal mines at Ranigunj and Jherria, almost all mine owners have provided workmen's dwellings for their employees. The *dhauras*, as they are called,

are built in blocks of eight to twenty-four, and vary largely in design and comfort. The rooms are generally 8 ft. by 10 ft., and have occasionally a small verandah, 3 ft. to 6 ft. broad. Frequently the rooms are back-to-back and very imperfectly ventilated. Although the housing regulations of the Jherria and the Asansol Mines Boards of Health prescribe a minimum of 100 sq. ft. and 1,000 c. ft. air-space, with doors and through ventilators for every family, hardly 7 per cent of the houses, at the end of 1923, came up to this standard. Quite a large number of small, unstable, stone dens are scattered about, where the aboriginal labourers live like swine. The filthy habits and peculiar ways of these people are, no doubt, responsible for much of the squalor and dirt in the *dhauras*, but frequently the lines themselves are so dingy and shabby that no amount of care could keep them better. The *dhauras* are allotted free to the workers, and are generally adequate in numbers. Besides free medical aid and free primary schools here and there, no special amenities exist for the labourers.

Housing in Jamshedpur.—It is a great relief to come to Jamshedpur—the headquarters of the Tata Iron and Steel Works—after the rather sickening explorations in the crowded and filthy labyrinths of the *bastis* in the jute mill towns and the coal mines. Jamshedpur is a magnificent monument to the memory of its great and illustrious founder, and a living and emphatic contradiction of the view that big industrial towns must necessarily be associated with congestion, dirt and squalor. The company provides good sanitary quarters for all kinds of labourers at low rents, which bring in about 5 per cent interest on the outlay excluding depreciation charges. Water, light, drainage, roads, schools, and hospitals are all properly looked after, and the town is kept scrupulously clean. The monotonous and insanitary lines of back-to-back houses here give place to courtyard houses in blocks of two and four, which afford through ventilation and ample open spaces for the children to play about and the women to enjoy fresh-air and sunshine. Large areas have also been reserved, where the poor class of labourers have made 6,614 little mud huts for themselves, under the guidance of the company, and mostly out of money¹ lent by the company. Minimum space allowed for a hut is

¹ Total amount sanctioned by the company for such loans was Rs. 86,181 till 1942-25, out of which Rs. 57,983 had been recovered by 1925.

40 ft. square, for which a monthly ground-rent of As. 5 is charged, so that each man may have a little garden in front of his hut. No more than 20 houses can be built on each acre of land by the people; while the company itself has not built more than 12 per acre.

Co-operation and Other Welfare Work.—Twenty-six co-operative credit societies, with a paid-up capital of Rs. 112,477-3-6, and various clubs and societies are thriving. Several temples, mosques and churches and public halls have been constructed by the people, for which generous contributions have been made by the company. All these facts go to prove the genuineness of the interest which is taken, both by the residents and the company, in the improvement and beautification of the town. The company had also been spending over Rs. 200,000 per annum on welfare work among the work-people, but this has been stopped since 1923 on account of financial stringency. New houses have not been constructed by the company for a long time, and accordingly there has been a very acute shortage of houses in the town. The insufficiency of houses for the large and rapidly growing population has given rise to congestion in many houses, so that even bath-rooms and kitchen-rooms are being utilised as living rooms.

Medical aid and medicines are provided free to everybody, while arrangements for the segregation of persons suffering from contagious diseases, and wards for those needing hospital treatment, are also available. A well-equipped waterworks provides filtered water for drinking and other purposes for the whole city. Cesspools and refuse depôts are situated at a fair distance from the *bastis*, while the dry and equable climate of the town helps to ward off all disease. The workmen, who come from practically every part of the country, are beginning to settle down with their families, and the migration of labour is insignificant as compared to other places in India.

Railway Settlements.—The E.B. Railway at Kanchrapara, the E.I. Railway at Howrah and Lillooah, the B.N. Railway at Kharagpore, all near Calcutta; the R. and K. and the B.N.W. Railways at Gorakhpore; and the E.I.Ry. at Jamalpur and Alambagh, have built good sanitary houses for their employees on scientific and up-to-date principles, with sufficient open spaces for gardens, etc., but, unfortunately, none have devoted much attention to the ordinary coolie, although he forms by far the largest proportion of their employees and is most in need of some help in this matter.

The Outlook.—Thus we see that the pioneer work in the field of welfare work has already been done in most of the important industrial towns in India, although it still remains to consolidate, harmonise, enlarge, and revivify their activities. A host of recalcitrant employers, who are taking undue advantage of the ignorance, poverty and disunion of their employees, however, have still to be made to realise their responsibilities towards their workmen, if we want to escape the bitter conflicts between Labour and Capital which have been the bane of industrialism in every country. With the advance of free and compulsory education among the workers, and the realisation of their rights, the hands of the industrialists are bound to be forced by the workers, if not by the legislatures.

CHAPTER XIII

THE STATE AND HOUSING

Functions of the State.—It is the duty of a state to lay down certain minimum standards, in every department of human activity, below which it should not allow any of its free citizens to fall. The house and its environment have so direct and powerful an influence on the physical, social, economic and moral well-being of the people that no civilised state can afford to neglect them for a long time. The evil effects of bad housing have already been discussed in detail; and the extent of bad housing, squalor and congestion, in some of our foremost industrial and commercial cities and growing mill and mining towns, has also been indicated. It is, moreover, clear that no remedy, however well conceived and helpful, will be effective until a substantial and direct interest is taken by the state. Welfare work on the part of the employers or social service agencies, as also co-operation, etc., have no doubt got their value, but they hardly touch even the fringe of the problem, and depend very largely on the material and moral support of both the central and the local governments for their utility and usefulness. At the present time, particularly, when the cost of building—both labour and materials—has risen so high, substantial state help has become absolutely essential.

Special Difficulties in Housing the Working-classes.—

No country on the Continent—it has been pointed out in a recent publication¹ of the International Labour Office, Geneva—has found it practicable to build for letting on an economic rent. If this is true, and there is little ground to doubt its veracity, it is clear that the poorer people are unable to secure suitable house accommodation if left to themselves. Naturally dark rooms, overcrowding of houses and persons, insanitation and insufficiency of water, and other requirements of health, would continue and develop. These will not only affect the general economic efficiency and the morals of the poor people, but the contagion is bound to spread to other classes; for in the present organisation of society, the prosperity of all classes

¹ *European Housing Problems Since the War, 1924.*

of people is so closely inter-dependent upon each other that no class can remain absolutely unaffected for a long time by the welfare or distress of one or more groups of the community. Thus the whole town or city and the nation is enveloped in gloom, as is evident from the condition of India at the present time. Congestion, squalor, depression, disease, inefficiency, indigence, are all so closely inter-connected with one another that no responsible modern state can afford to overlook their effects and not adopt effective measures to counteract their influence. The failure of the Indian Government to comprehend the enormity of the problem and its evil effects has helped to increase its magnitude, and made the work of readjustment and reconstruction both difficult and expensive.

Objections to State Housing: Constitutional.—Sometimes the interference of the state in the sphere of housing is opposed on constitutional, economic, social, or philosophic grounds. A word in connection with these objections will accordingly not be out of place. According to the constitutionalists, housing legislation is necessarily class-legislation, and, moreover, involves an undue extension of the police powers of the state, and is therefore condemnable. This appears to be frivolous, in face of the numerous activities of the state for the welfare of the poor or incapacitated sections of the community. In fact, all expenditure on works of public utility, like medicine, sanitation, education and grants to philanthropic bodies and associations can come directly or indirectly under class legislation; and involves considerable discretion to government officials. Even the theory of taxation which imposes a progressive tax on the richer people and seeks to free the poorer classes from even the ordinary taxes, can be subjected to similar objections.

Economic Objection.—The second argument is based on economic grounds, and deserves closer consideration. It is said that housing is a costly affair and that the hands of the Government are already full, while any increase of taxation would be both unpopular and undesirable—that the people would be unwilling to add to their burden in order to provide or subsidise houses for able-bodied work-people. In our opinion the provision of a wholesome home for every family is a primary need of the citizen, for on it depends the very existence and growth of the nation, so that if the taxpayer was really unable to assume such a burden, and if there were no other way of meeting the problem, housing should take pre-

cedence even over education, railways, post and telegraphs, etc. Health and morals are, without doubt, more urgent and elemental than even education. In fact, however, housing legislation need not involve heavy taxation. Except in exceptional times, constructive housing legislation merely needs the community's credit, and can be more or less self-supporting. Service could be rendered *at cost*.

Social Objections.—The third argument, the one based on moral and social principles, may be easily dismissed. It is said that the provision of houses by the state will result in indolence and pauperism among the working-men—that the giving away of something for nothing involves moral degradation. This is evidently based on a misunderstanding of the exact nature of state action which is generally advocated in connection with housing. Not only is it not proposed to give away houses free to the working-men, but it is not even proposed to let or sell them much below cost. The receiving of a house at cost is only as much pauperisation as is taking advantage of educational institutions, waterworks, post and telegraph, railways, canals, etc., all of which are provided by the state, and most of which are subsidised by it.

Other Objections.—Coming to the philosophic objection of the advocates of the *laissez faire* doctrine, who object to every increase of governmental functions on the hackneyed grounds of liberty and equality being in danger, we think that it has lost its force long ago. The contention that all government is *per se* an evil may not only be traced to the founders of individualism—Adam Smith, Herbert Spencer, John Stuart Mill, etc.—but also to philosophic anarchists like Lenin and Trotsky. The whole trend of modern thought and legislation has almost unanimously rejected such a philosophy, and it is, therefore, unnecessary to examine it very closely here. The galaxy of health and labour laws, which decorates the statute books of almost every progressive nation of the world at the present time, proclaims in no uncertain terms that the only limit which the state can and should recognise to its functions is the social, moral, economic and political prosperity and welfare of its people. No legislation is, accordingly, too socialistic to be undertaken by the state which is necessary for the national well-being, just as no legislation is absolutely essential for order and good government which unduly restricts the freedom of the individual to discharge his duties as an enlightened and self-respecting citizen.

The criterion should always be the greatest good of the greatest number. In fact, the chances are that we shall go much farther in the direction of public action and governmental regulation before the pendulum swings back. The proceedings of the international labour conferences, the conventions established by them, and the legislation which has followed them in almost every country, point towards the same direction.

State Housing.—All these things not only show that there is no insurmountable obstacle to a policy of constructive housing legislation in India, but the conditions in most of the towns, no less than in the growing mill and mining areas, warrant an immediate and comprehensive survey of the problem and the initiation of thorough legislation. In advocating such a housing law in India we are not proposing any new departure from the established practice of legislation in the civilised nations of the world. In fact, almost every country has felt the necessity and undertaken legislation, not only to restrict the growth of insanitary and ill-planned houses and the improvement or destruction of existing ones, as has been found necessary, but has also planned and executed various model housing schemes, over and above the lavish grants of loans on easy terms and low interest to individuals, co-operative and public utility societies, and local governments, for the construction of houses.

Beginnings of Housing Legislation in England.—In England, however, constructive housing legislation dates back to 1890, when the Housing of the Working-classes Act, giving powers to deal with insanitary or obstructive houses and localities, and providing for the giving of loans to finance the construction of houses by local authorities, public utility societies, or individuals, was passed. The Housing and Town-planning Act of 1909 made it obligatory on local authorities to construct houses whenever a shortage of houses existed; and also gave to four inhabitant householders the right to petition the Local Government Board about the failure of the local authority to construct houses where there was a pressing need for them; and the Local Government Board, after enquiring into the matter, was empowered to order the local authorities to take action. A separate part called upon local authorities or owners of estates to prepare plans indicating the lay-out of streets, open spaces, as well as residential, business and factory districts, and the limitation of the number of houses per acre. Provision was also made for the advance of liberal loans at low interest and for long

periods to individuals and housing associations for the construction of houses.

Housing Subsidies, 1919-1922.—In spite of these provisions, it was found, in 1919, that there was a shortage of about a million houses all over Great Britain. Accordingly, another Act was passed in the same year, on the initiation of Dr. Addison, which made it the duty of local authorities to provide for the housing needs of their districts, and gave the county councils and the Ministry of Health power to act in default of a local authority. It also simplified and cheapened the procedure for acquiring slum areas for the purpose of clearance and reconstruction, while liberal subsidies¹ were granted to private individuals for constructing cottages. In May, 1920, these subsidies were raised by £100 each for houses begun after April, 1920, and £50 each for houses begun before April, 1920, but after December 23rd, 1919, on account of the increased cost of building. Under the Addison Act 172,997 houses were built by local authorities and public utility societies, and 39,184 by private builders. This entailed an expenditure of £8,700,000 per annum from public funds.²

The Chamberlain Act, 1923.—In 1923 another housing Act was passed on the initiation of Mr. Chamberlain, which changed the existing system and introduced a subsidy of £6 per house per year for 20 years. If there was any further loss in the construction of houses, it was to be borne by the local authorities, occupiers, or builders. Most of the local authorities did not provide any additional grant, but sometimes capitalised the value of the state subsidy and paid the whole amount in a lump sum to the builders. Some municipalities, however, paid an additional subsidy of £10 to £25 per house. About two-thirds of the houses built with the aid of the subsidy were erected by private enterprise for sale. Under the scheme 102,579 houses were constructed by 1st September, 1925, while another 42,644 were under construction. The

¹ Cottages containing a living room, a parlour and three to four bedrooms, with at least an area of 820 sq. ft.—£160.

Cottages containing a living room and three bedrooms, with at least an area of 780 sq. ft.—£140.

Cottages containing a living room and two bedrooms, with at least an area of 700 sq. ft.—£130.

Monthly Labour Review, Washington, August, 1920.

² 'Subsidies for Houses,' by Arthur Greenwood, *Contemporary Review*, February, 1926.

capitalised value of the subsidy for these houses, at the rate of £77 per house, entailed an expenditure of about £11,000,000 on the state.

Housing under the Labour Government.—Even these provisions were considered inadequate by the Labour Government in 1924, because :

1. The building programme was not sufficiently rapid.
2. The houses were let at rates higher than the people could pay.
3. No provision was made for the housing of agricultural workers, since they were placed on the same footing as the urban ; and
4. Private houses were always costlier than the workmen could afford.

The Wheatley Act.—These defects were sought to be removed by the Wheatley Act, which was passed by the government in 1924, providing :

1. A continuous 15 years' building programme.
2. An increased subsidy of £9 a year for 40 years, instead of £6 for 20 years as before, to local authorities and private individuals, in order to enable working-men to rent the houses on lower rents.
3. An additional subsidy of £12½ per annum to local authorities and private persons for building houses in agricultural parishes.
4. The continuance for 15 years of the provisions of the Chamberlain Act with regard to houses not subject to the special conditions imposed on persons availing themselves of the above subsidies.

Conditions of Subsidies.—The subsidy is not paid to houses built at the rate of more than eight per acre in agricultural parishes and twelve per acre elsewhere, or if account is not taken of town-planning schemes in force or likely to be inaugurated. The other conditions on which subsidies are given are the following :¹

1. That the tenant shall not sublet any part of it.
2. That the houses shall be let only to those who intend to reside in them, and not be sold.
3. That the houses shall not be disposed of, except with the permission of the Minister of Health.

¹ Reiss, *The New Housing Handbook*.

4. That a fair wages clause is added in all contracts for the erection of houses.

5. That the rent shall not be higher than the normal pre-War rent except when the loss is more than £4½, the amount of the additional subsidy which the local authorities are called upon to pay per annum.

6. That preference is given to large families.

Other Provisions.—The Act is to remain in force for 15 years, i.e. till 1939, but after every two years the Minister of Health is required to review the whole position in order to ascertain if a reduction in the rate of the subsidy is warranted by a reduction in the cost of building materials, etc. With regard to slum clearance also, if any four inhabitants or a Justice of the Peace report to the local authorities concerned, the health officer has to make an inspection of the site and take adequate steps.

Housing Legislation in Germany.—In Germany, from the earliest times, the cities and local governments have been extremely active in constructing houses, largely on their own initiative and responsibility, while the Reichstag and the Prussian Diet have spent large sums of money in constructing houses for their employees and in bestowing lavish grants-in-aid, advances and loans to co-operative societies and other public utility societies, for the construction of houses. With regard to town-planning, German cities are most progressive; so that one is sure to find elaborate schemes about the future development of the town with any town council to which one may happen to go. Strict regulations with regard to sanitation and congestion exist throughout. In 1922 and 1923 new housing Acts were passed to regulate industrial dwellings,² and to consolidate the rent Acts and the regulations with regard to the giving of state loans to public bodies and co-operative societies.

Modern Socialistic Tendencies.—The increasing socialistic tendencies in the country, and the uncommon shortage of house-room in Berlin has, however, induced the government recently to promulgate strict regulations, with regard not merely to the housing of working-class families, but to all classes in the community, to rich and middle classes as well, throughout the city. Apartments are strictly rationed, and the inhabitants are compelled by law to leave there names and addresses inscribed in a municipal register

² Dwellings built by employers on their own land for their workers.

at an office in their district, with a statement of the number of members in their family and the number of rooms which they occupy, the conditions of their lease, and their revenue or earning capacity. Under the regulations a family of two persons may use but two rooms, a family of six, six rooms, etc. The enforcement of these regulations is carried out in a rough-and-ready manner; and anybody who is occupying more rooms might receive an official 'surveyor' at any hour, who is authorized to enquire and order the reservation of any surplus accommodation to any other family which may stand in need of the same.¹

Housing Legislation in Soviet Russia.—In Soviet Russia similar regulations were enforced, but it was soon found that the compulsory eviction and installation of tenants, and the rationing of apartments meant further deterioration, which is evident from the fact that in Moscow twenty per cent of the dwellings available immediately before the Revolution in 1917—40,000 in all—were found totally uninhabitable in 1924. The occupants, on account of a constant fear of eviction from their dwellings and the forfeiture of their little furnishings, ceased to take an interest in the maintenance and protection of their houses; and the government had ultimately to withdraw the regulations, because the housing shortage became more acute while the death-rate and sickness consequently increased.

Housing Legislation in Austria and Belgium.—Austria follows more or less strictly the German system, except for the additional aid which it sometimes gives in the form of tax exemptions. It was, however, Belgium which produced the earliest effective housing legislation for the construction of houses, in 1889. It provides for loans to working-men, co-operative and other societies, for long periods and on easy terms up to the extent of 90 per cent of the cost of the house; while, on the other hand, local housing committees have been formed in every district to stimulate public interest in housing; assist and advise limited-dividend housing companies, loan associations and individual working-men; give out the certificates entitling to tax exemptions; help to secure loans for would-be home owners; watch over the enforcement of laws for the sanitary supervision of houses; and control slum areas. The process of giving loans has been further simplified by offering to the intend-

¹ *Housing Betterment*, New York, U.S.A., December, 1925.

ing builder an insurance policy on his life for the unpaid portion of his loan; while the government has undertaken the construction of houses destroyed during the War.

Housing Legislation in France and on the Continent.—

Housing legislation in France generally follows the Belgian model, but dates back to 1894. Tax exemptions, insurance principle for loans to individual workmen, other loans, housing committees, have all been provided, while the housing law of 1912 added a new administrative unit to enforce the restrictive sanitary laws, engage in direct municipal housing, receive gifts and subsidies, and raise money for housing purposes in various other ways. A recent committee appointed by the government to study the problem in detail has recommended further facilities for long period loans at nominal interest.

Italy, Switzerland, Holland, Norway, Denmark, Sweden, Finland, etc., follow one or the other principles described above, and practically every one has some sort of legislation to relieve congestion and insanitary conditions.

Tenement House Laws in U.S.A.—The United States have thorough-going legislation in practically all the states to regulate the construction of new houses and to improve the sanitary and hygienic conditions of existing buildings, while extensive surveys have been carried out in the principal towns to determine the extent and nature of the problem, according to which steps have been taken; so that at present effective tenement house laws exist in the following states, among others: Pennsylvania, New York, New Jersey, Connecticut, Wisconsin, Indiana, California, Kentucky, Massachusetts, Michigan, Minnesota, Iowa and Illinois. Over and above the housing regulations similar to those in the U.S.A., Canada has also progressed with town-planning Acts in most of the provinces.

Housing Legislation in Australia and New Zealand.—

It had, however, been left to Australia and New Zealand to frame the most perfect, thorough and up-to-date laws with regard to housing, as also to devise the simplest and most efficient machinery for their working. The Advances to Workers Act provides for a loan of money up to £450 (of course the amount can never exceed the actual value of the house to be erected) to any individual desirous of building a house. Various plans and models of houses are kept ready for the guidance and convenience of the builders. The individual has merely to fill up a form at the post office, which forwards it to the

State Advances office. Then an agent from the nearest valuation office goes to investigate his status, character, reliability, etc., the land on which he wants to build, the reasonableness of the amount of loan asked for, and any other information which he thinks of any value. On the basis of this report the loan is granted, which he receives through the post office. He has to pay the half-yearly interest and a small amount of the principal also to the post office. The Workmen's Dwellings Act, again, saves the individual even the trouble of finding land and building the house. The state builds on government land and rents it on a weekly tenancy, or on a fifty years' lease, or permits the occupant to acquire ownership by cash payment after 25 years, by monthly payments or by a life insurance policy in favour of the state. Australia has also made another experiment, called the Fair Rents Court, to which any tenant who thinks that he is paying an exorbitant rent may apply for a ruling.

Restrictive and Constructive Housing Legislation.—

It will appear, from the above survey of housing legislation in different countries, that broadly speaking there are two ways in which the housing problem has been tackled in most countries. For convenience they may be called the *Restrictive* and *Constructive* methods. The former aims at preventing the erection or maintenance of bad houses or insanitary areas by the enforcement of minimum standards of light, ventilation, sanitation and safety. It includes the clearance of slum areas, the opening up of congested localities, the demolition of houses considered to be unfit for human habitation, and the improvement of those which admit of betterment. The latter, or constructive method, consists of the machinery through which suitable houses are provided for such of the citizens as need them. It includes both the direct construction of houses and the provision of loans or subsidies, to individuals or companies, to construct houses.

Relative Value of Each Method.—It will be seen that the two ways, as detailed above, are not alternate but complementary, and that neither can go very far alone. The state of a country may require slightly more emphasis on the one or the other, but neither can be dispensed with absolutely. Mainly restrictive methods might intensify rather than solve the problem, as was pointed out by the Land Enquiry Committee in England, in 1919, and as has also been felt in Bombay, when, three or four years back, on account of the rapid demolition of unfit houses by the Improvement Trust, the shortage of houses was increased and the housing problem became

more acute than ever. The evils of exclusive constructive methods have been very tersely summarised by Lawrence Veiller of the National Housing Association, New York. He writes, that until certain fundamental evils have been remedied, it is futile or worse to adopt the methods of housing reform, which may be said to belong to the post-graduate period rather than to the kindergarten stage of community development. In other words, we must get rid of our slums before we establish garden cities ; we must stop people living in cellars before we concern ourselves with methods of taxation ; we must make it impossible for builders to build dark rooms in new houses before we urge the government to subsidise building ; we must abolish privy-vaults before we build model tenements. When these things have been done, there is no question that effort can be profitably expended in the other directions.¹

Inter-dependence of the Two Methods.—Without in any way under-estimating the importance of restrictive housing legislation, we are constrained to disagree with the philosophy that restrictive and constructive housing legislation bear the same relation to each other as the kindergarten to the post-graduate classes of study. At best the metaphor is an exaggeration of facts. Actually, however, as we have already pointed out above, the two processes go side by side with each other : neither the one nor the other follows or precedes the other. They may, therefore, be more aptly compared to the two blades of a pair of scissors—both equally necessary for proper and efficient service. Accordingly, any law which claims to offer a satisfactory solution of the housing problem must include the simultaneous and correlative development of restrictive and constructive housing legislation in their most effective forms.

Housing Legislation in India.—It is needless to repeat at this place that almost nothing has been done in India by the government to relieve the housing shortage, beyond empowering municipal bodies to enforce such building and sanitary bye-laws as their local circumstances require, or to undertake the opening up of congested areas and the construction of model houses, directly or through development boards. It has already been shown how little the municipalities have progressed even in their restricted sphere. It has also been shown how the Improvement Trusts, which were established in some of the important cities in India

¹ Lawrence Veiller, *A Model Housing Law*.

especially for the improvement of the housing and sanitary conditions within their jurisdiction, have, with few exceptions, failed to do much in that regard.

The Bombay Development Directorate.—The Bombay Government, however, in 1920 took courage in both hands, and embarked upon an ambitious scheme of development for Bombay city. As early as May, 1914, the Bombay Development Committee had reported the necessity of some special measures for the development of the city of Bombay, but action on the report had to be postponed on account of the outbreak of war. Even during the course of the War, the government had to pass a Rent Restriction Act in 1916, in order to protect the tenants against abnormal enhancements of rents. When, however, the War came to an end, in 1918, it was found that, owing to the large increase in the city's population during the War and the high prices of materials, conditions were much worse than before, and that more drastic and speedy action was necessary. It was, moreover, realised that on account of the heavy responsibilities which already rested on the municipality and the Improvement Trust, the scheme could not be properly carried out by them. Accordingly the government undertook direct action, and announced the establishment of a Development Department and Directorate, in charge of the General Member of the Bombay Government.

Objects of the Department.—Its duties were defined as under :

(1) to carry out the Back Bay Reclamation Scheme, and any other reclamation schemes which may be found necessary in or near Bombay city ;

(2) to undertake the industrial housing scheme of 50,000 one-room tenements for the working-classes in Bombay ;

(3) to organise systematically the supply of building materials for its own work and for the working-classes in Bombay ;

(4) to take over all questions relating to the acquisition of land in Bombay city, and all questions regarding the utilisation of government lands ;

(5) to carry out large schemes for the systematic development of Salsette island by :

(a) town-planning schemes to be carried out by local authorities,

(b) the purchase of areas outright, with a view to resale after development ;

(6) to secure an adequate water-supply for the whole of Salsette when it is developed as an urban area ;

(7) to deal with the supply and distribution of electric energy, both for domestic and industrial purposes, in the area outside Bombay ;

(8) to take up the question of the development of communications to link up Bombay city with the areas to be developed in Salsette and Trombay.

Working of the Directorate.—Thus the Government tried to increase both the amount of land available for residential purposes by reclamation from the sea, by developing and opening up the suburbs, and to construct *chawls* for the workmen. It also offered loans to co-operative societies and individuals for the construction of houses. The work was started immediately, and is proceeding. The objects and the purpose of the enterprise, it will be agreed on all hands, were laudable, and deserve nothing but approbation. It is regrettable, however, that its scope, in so far as the improvement of the housing conditions were concerned, was rather limited and has since been further curtailed. Moreover, recent experience shows that the Directorate has not been justifying the expectations placed in it. The *chawls* constructed by the Directorate are unsatisfactory in so far as the rooms are dark and insufficiently ventilated, like those of the Improvement Trust. This is inevitable when rows of rooms are built on two sides of a common closed verandah. To add to this, the ventilators in the Development Directorate rooms are very narrow.

Rents of the Directorate Houses.—Then comes the question of rent. Although it is true, as the Land Manager of the Directorate maintains, that even the present rents, which vary from Rs. 10-8 to Rs. 11-8 per mensem, do not yield an economic return on their outlay ; it must be recognised that they are beyond the means of an ordinary labourer earning Rs. 22 to Rs. 40 per mensem. As has been pointed out already, no European country in recent years has found it practicable to build for letting at an economic rent. The high rate of interest and the increased cost of building materials are not a feature new to Bombay. Every country has undertaken, either the construction of houses on its own account and let them at cheap rates, or subsidized building, and the Bombay Development Directorate could not be an exception. On account of the high rents, most of the Directorate *chawls* have not been occupied by the working-classes,

although the need of houses is as acute as ever. That the demand has not fallen to any appreciable extent will be apparent from the fact that there are numerous private *chawls* spread over all the mill areas, where mill hands are living like dogs and cattle, at the rate of eight or ten people per room, hardly 8 ft. by 10 ft. in area. The lack of any organised and strong labour union, which could crystallize the views of labour, in this as well as other matters, is most deplorable.

The Failure of the Department.—The fact that the *chawls* are not being occupied by the workers has been misinterpreted by the Development Directorate as a slackness of demand, and the programme to construct 50,000 one-room tenements by March, 1929, was revised, and it was decided to close the work as soon as 16,000 tenements are constructed, which have since been completed. Besides, the staff and establishments have proved too expensive a business to be worth the benefits. The Bombay Legislative Council accordingly appointed a committee to go into the working of the department, and to recommend economies and a scheme of reorganisation. The Back Bay Reclamation Scheme indeed ended in a scandal, after costing the taxpayer an enormous amount of money. It was found out, only after two years, that the output of the dredging plant has been very much below what was estimated. In fact, the dredger, which was contracted to be capable of reclaiming 2,000 cubic yards per hour, has been able to accomplish hardly 25 per cent of that work in that time. Thus both the time and cost of the completion of the work have been indefinitely increased; and it is now being calculated that the dredger has been more expensive than even dry earth-filling, which, on the other hand, makes a better foundation, can be undertaken in parts, and requires a much less expensive plant. Every one is trying to shift the responsibility for this bungling on the other, while the government has decided to stop the work after the completion of a few minor works which are very near completion. The scheme of suburban development has, however, shown better results. Out of a total residential area of about 825,000 sq. yds. made available by the Directorate in plots situated on roads, 45 per cent had been sold by the end of 1925, in spite of the depressed state of the land market. A large amount of emigration to the five suburban areas has thus taken place, and the city is relieved of a corresponding amount of congestion.¹ It is

¹ Speech of Sir Cowasji Jehangir, General Member, Bombay Government, in the Bombay Legislative Council, on 16th March, 1926.

needless to add that almost nothing has been done in the other provinces in this regard.

Proposed Housing Legislation in India.—Coming to an outline of the shape that housing legislation should take in India, we think that, in the first instance, every province should raise a Housing Fund by issuing Government Bonds, under the direction and guidance of the provincial government, from which loans should be given—

(1) To municipalities and other local authorities, both for slum clearance schemes and the direct construction of houses.

And (2) to limited-dividend housing societies — civic, philanthropic, co-operative and even industrial, under well-defined conditions — for the purpose of constructing houses. The loans should be repayable within a period varying from 20 to 50 years, according to individual requirements and circumstances; and the rate of interest should just cover the interest payable on the bonds and the expense of their issue. Facilities should be created for giving loans to individual working-men desirous of constructing a house for themselves through the post office or some other similar agency, as in Australia, New Zealand, Belgium, France or Italy. The extent of the loans to individual working-men, philanthropic or co-operative societies and municipalities, might vary from 40 to 45 per cent of the cost of the house or houses constructed; and in the case of industrial societies, and local authorities for slum clearance, from 30 to 35 per cent of their cost.

Over and above the provincial legislation on the lines indicated above, the Government of India should also have a separate Housing Fund, from which it may lend amounts of the same value as are lent from the Provincial Housing Fund, to the same persons, on similar conditions.

Local Housing Boards.—Above all, there should be Local Housing Boards in every important city, under the direct control of the provinces, for investigating local conditions, making known their findings, stirring up local sentiment against bad housing, reporting to the provincial authorities about any neglect on the part of the municipalities in carrying out the provisions of the restrictive housing laws or the construction of houses within their jurisdiction, if they are wanted, and also actually constructing houses, carrying out slum-clearance schemes or town-planning experiments, if the municipality is persistently inactive. The local boards should always keep a collec-

tion of ready-made plans of model houses, which combine cheapness with efficiency and are suitable for local needs, for the sake of working-men and other poor classes; and should act also as general information bureaux on housing problems. They may even help working-men and housing societies in securing loans from the municipal, provincial and national housing funds.

Housing for the Poorest Classes.—It may here be made clear that for some time to come, and in some cities, the lowest economic group will have to be housed in tenements or rented houses, in spite of all the facilities to provide them with homes; for, as Miss Wood very aptly points out, in connection with conditions in the United States, 'We must not shut our eyes to the truth that there are millions of wage-earners without the opportunity or the initiative to profit by such arrangements—too poor even to lay by the small sums necessary to acquire a home on the easiest conceivable terms, too ignorant to understand the ways and means, too much numbed by the whirl of the great machine in which they are tiny cogs to develop the driving power, pre-destined to be tenants all their lives. Yet these are the people who most of all need help, whose children most of all need the stimulus of good home conditions. For them municipal houses, or houses built and rented by a limited dividend public association, present the only solution.'¹

The Sub-normal Classes.—On the other hand, it is also impossible to provide all the houses needed by wage-earners through government aid, however liberal. There will always be a residuum of people—the unfortunate, the ignorant, the physically, mentally or morally sub-normal—who will be willing to live in cellars, or dark rooms, in filth and dilapidation, to save a few annas a month of rent. And, above all, there will always be some landlords who will make no repairs or improvements until forced to do so by the heavy hand of law. Thus restrictive housing legislation can never be dispensed with. Gradually there will emerge a strong public opinion, which will lay down the irreducible standard of housing for the entire community, and then both society and the state will look upon the profiteering landlord as they regard a criminal, while the unfortunate tenant, the victim of social and economic circumstances, will be treated by ameliorative measures similar to those which are now being applied to the defectives.

¹ Miss Wood, *The Housing of the Unskilled Wage-Earner*, p. 258.

CHAPTER XIV

CO-OPERATIVE BUILDING SOCIETIES

Co-operative Building in Bavaria.—In England, as also in Germany, Italy and on the Continent as a whole, the housing problem has been increasingly tackled by co-operation. Since the War the movement has received a strong stimulus, and co-operative building societies have presented a quick growth on account of the increased demand for house accommodation. The increased cost of building materials—which, in some places, have gone up four or five times in value as compared to the pre-war rates—has, however, seriously checked their activities; while, in not a few cases, initial mistakes in the selection of the sites, mismanagement, or the unrestricted admission of persons of doubtful character and integrity, have led to disappointment and pessimism among the members and the people as a whole. Thus, in Germany, within a couple of years after the cessation of hostilities, from 1918 to 1921, over 1,225 societies were formed, of which about 200 were started in Bavaria alone. Almost every town of any importance has its co-operative societies, while sometimes even bigger villages are not without one. Writing in 1922, Darling estimated that there were, roughly, 100 places, in an agricultural country like Bavaria, where co-operative building societies flourished. He writes, 'It is a striking illustration of how much co-operation owes to necessity. Many of those societies, it is true, have not yet started building, some probably never will, while others are not expected to live very long.' In conclusion he very aptly remarks that, 'in so quick a growth there must be tares as well as wheat. But the wheat is good, and the management as a whole is vigorous, and it is fortunate in having at its head men of capacity and enthusiasm.'¹

Growth of Co-operative Housing in England and Italy.

—Italy and England also show a very rapid growth of co-operative housing societies, though the latter has not been half as prolific as Germany. Holland, Belgium, France and Switzerland have not been far behind, while a few are met with in almost every country

¹ M. L. Darling, I.C.S., *Co-operation in Italy and Germany*, p. 120.

of the world. Such a growth would have been almost impossible without some external aid, particularly because building is a costly affair and has become still more so since the War. The various kinds of advances, grants-in-aid and loans offered by the Development Commission in Germany, and the Public Works Loan Commissioners in England, account for the growth and sustenance of the societies in these places, while public philanthropy and contributions from employers and other bodies have helped in no small measure to defray the initial costs and to make possible the undertaking of ambitious schemes.

Coming to the actual working of the societies, we find that in England there are two different kinds of societies, the one merely buys land on which its members may build houses on separate plots; and it either retains the ownership of the ground until the building member has paid the total amount due from him, or transfers the land and has a mortgage on the house. The other has a higher aim, and not only seeks to provide houses for its members, but attempts to develop the amenities of the neighbourhood, to create a common social life among the people, secure sanitary and æsthetic advantages, regulate the architecture and the orientation of buildings and provide adequate open spaces, parks and recreational grounds for the residents. Thus the bigger the society, the greater are the opportunities of securing all kinds of facilities for the members and the nearer will they be to a garden city. Co-operative estates of this type now exist at several places in England.

Ealing Tenants.—The Ealing Tenants were the first to be brought into existence by the enthusiasm and enterprise of a few co-operatives. Although they had to go through all kinds of vicissitudes in the beginning, with the popularization of the idea and the growth of capital, the society rapidly expanded and now owns over 60 acres of land, accommodating about 700 houses, laid out on a good garden village design, affording recreation grounds, parks and playgrounds in practically every section. In spite of the fact that the right of letting houses is restricted to members, the demand for houses has been very great, and there is a long list of members waiting for a house. Competitions are held for the best-kept gardens, the cleanest house, and the most artistic locality, in order to excite in the resident members a sense of community with one another and of pride in their homes.

Hampstead Tenants.—Hampstead Tenants, another garden

suburb towards the north of London, near the Hampstead Heath Park, was brought into existence by the efforts of four separate co-operative societies, who now hold together over 450 acres of land, which they have laid out on a garden city plan. The entire area is in a sanitary state, and every residential house, without exception, is fitted with a bath. The houses belong to the societies and rents have been maintained at the pre-War level. No tenant is ejected from his house if of good conduct. Referring to the design of houses and the lay-out of the buildings, Strickland observes that the Hampstead Co-operatives have adopted a system of varied but not fantastic architecture, curbing and grass lined, but neither confusing nor untidy roads; there is a good club, a library, several churches and a technical institute.¹

Onslow Village.—Onslow Village is another new colony, which is being laid out in Surrey on an area of about 650 acres on co-partnership lines. There is one peculiarity about Onslow, and that is that the local authority, the Guildford Town Council, itself is a big shareholder in the society, and is represented by the Mayor and a member on the committee of the board of directors of the society.

Co-partnership Tenants.—There are about a hundred societies in Great Britain alone which, at least in name, bear the co-operative label, but hardly a fourth of these are of any importance or conform to the principles of co-operation. About fourteen of these have been federated into the 'Co-partnership Tenants,' which was organised in London as early as 1907, to co-ordinate the activities of the then existing societies and to establish and develop others on right lines as residential co-partnership estates. The federation not only raises capital for itself, but also for its constituent societies, buys building materials on a large scale for the societies, and engages the services of efficient architects, surveyors and other specialised workers in common. It also organises and promotes the formation of co-operative societies among all classes of artisans and labourers required in the building operations, and whose services are required for the tenants' societies.

German Societies.—In Germany also there are two kinds of building societies—the one which builds to let and the other to sell to the members; but the latter are rare, and generally retain the right

¹ C. F. Strickland, *Studies in European Co-operation*.

to re-purchase the house at the original price minus depreciation, if the payments are delayed, or the house and garden are not properly kept, or if any of the other conditions of the sale are violated. Such societies also restrict the right of the individual to alter or materially improve the house, as it is no object of these societies to facilitate the acquisition of large houses. Thus, even after the member has acquired his house, the society retains substantial rights on the house, and his freedom to enclose his garden by means of palisades or high walls, to erect shabby sheds within public view, and even to keep noisy or dirty animals, is closely restricted. Yet if he dislikes these encroachments upon his liberty, he has only to convince his fellow members in general meetings of the wrongs which they suffer in common with him. Since the War, the desire for independence, even among the co-operatives, has been very great; so that many societies have sprung up to facilitate the acquisition of houses for their members at the lowest initial costs. Thus an individual can obtain ownership of a house, of course with the ordinary restrictions, on payment of only 25 per cent of the total costs, and sometimes even less; while the rest is realised in convenient instalments spread over 15 or 20 years. In the case of houses let to members, rents cannot be enhanced except with the sanction of a general meeting of the members, while no member can be evicted from his dwelling if of good behaviour.

Finance and Actual Working.—At this stage the question of funds, needed to carry on the work of the societies, requires some consideration. The building society generally starts with buying land from the value of the shares subscribed by the members, as soon as they are adequate for the purpose. The land is then mortgaged, and out of the money thus obtained some houses are constructed. These are, in turn, themselves mortgaged, and with the proceeds more houses are built, and the process is repeated till every member is provided with a house. But all this is not as easy as it might be supposed. The rise in the cost of building has been so immense since the War that the rents would have to be almost prohibitive in order to pay even a nominal interest on the mortgage bonds. The difficulty of finding a banker who will advance money on such mortgages up to a high proportion of the value, and for almost indefinitely long periods, will next be encountered. Fortunately, in Germany, and to a more or less extent in practically every other Western country, lavish government grants have been made to cover

the unremunerative part of the cost of building—the expenditure which cannot be covered by rent—on the condition that rents are controlled, preference is given to those with special claims arising out of the War, or to persons with large families; and that the right of pre-emption is guaranteed to the state. Mortgage loans have also been issued, through the central bank and other agencies, up to 90 per cent of the value of the property, and at a nominal interest of 4·5 per cent on municipal guarantee. Philanthropic and public-spirited persons and associations have sometimes made similar advances, while tradesmen have done the same in return for the exclusive custom of all the members of the society. Landlords or building co-operatives may also be persuaded to accept mortgage bonds in lieu of cash for the greater part of the price of their land or building cost.

The Munich House Building Society.—A close examination of the origin and development of individual societies will show that almost every one of them had to go through some period of trial and uncertainty, from which they either did not emerge at all or came out more powerful and strong. To take an actual example, the Munich House Building Society, which is the oldest in Munich and was fortunate enough to secure the moral and material support of the king of Bavaria among others at the very start, acquired a plot near the industrial area in Munich, and built a large number of houses, to be purchased by the members, the employees of the mills close by. But, on account of the over-production of houses, rents went down and the members refused to buy. Thus the houses remained empty, and for several years the society was in a precarious condition. Later on, however, with the help of a few conscientious and loyal members and the addition of a new and better class of members, the society again revived, and now owns 234 dwellings of all sizes, from one room only up to a maximum of six. The houses, which are valued at about £10,000, are all mortgaged to a local mortgage bank, at from 4 to 5 per cent interest, up to 60 per cent of their value. Before the War 50 per cent of the dwellings were occupied by non-members, but at present very few such tenants have been left. Non-members can get a house only after all members have been accommodated, and can always be given a month or a quarter's notice to quit. Incidentally, the society acts as a savings bank for its members, and has over £1,500 of deposits.¹

¹ C. F. Strickland, *Studies in European Co-operation*, p. 106.

Other societies sometimes maintain dairies, bakeries, co-operative stores, etc., for the benefit of their members.

Wrong Notions about Co-operatives.—On account of the lure of government aid and loans, unscrupulous men have sometimes formed a number of such societies in order to earn profits, while the word has been indiscriminately used by business men and traders to advertise their goods and deceive ignorant people. Accordingly, the word has acquired an odd reputation, and all kinds of vague notions exist in the minds of the people about co-operative societies and co-operatives, while co-operative tenants are looked upon as out of the ordinary stock. The remarks of Strickland with regard to these are both refreshing and enlightening. He writes, 'The average tenant of a co-partner community resembles the average resident of any other district in appearance, dress and habits, with the exception that he is occupying a better built and more picturesque house than he would secure elsewhere for the same rent; his landlord is a reasonable person, not a skin-flint, and is elected by and responsible to the tenants; his surroundings are more beautiful, cleaner and less monotonous; he may surrender his house at short notice if his work takes him to another district, knowing that a successor in tenancy is waiting for his departure but cannot eject him by offering a higher rent. His neighbours are sober and orderly people in good health; the death-rate of infants in Letchworth Garden City is about 32 per 1,000; in London, 107; and Liverpool, 143 per 1,000. In order to gain these not inappreciable ends, it is true that the co-partner submits to certain regulations not elsewhere enforced.'¹

Co-operative Housing in India.—In India, the co-operative movement is still in its infancy. In spite of the active interest taken by the government in encouraging co-operation of various sorts among the people, and the facilities of audit and advice offered through its registrars and assistant registrars, the movement can hardly be said to have taken root in the minds of the ordinary people. The chief obstacles in the way appear to be the lack of education among the people and the absence of a concerted propaganda in favour of the movement. In the sphere of housing, particularly, very little headway has been made. It is true, however, that building societies do exist here and there, but the amount of work which they have accomplished is very little.

¹ C. F. Strickland, *Studies in European Co-operation*, p. 106.

The Co-operative Housing Association.—A discussion on the subject at the Bombay Provincial Co-operative Conference, in 1913, however, gave a stimulus to the idea, and a Provincial Committee, with the Hon. Mr. J. P. Orr, the then chairman of the Bombay Improvement Trust, as chairman, was appointed to start a Co-operative Housing Association in Bombay, with the express object of organising housing societies on co-operative lines and giving them advice and guidance. Due to the efforts made by this association in organising lectures, distributing pamphlets, and otherwise helping the movement, about 56 co-operative housing societies, with 5,654 members, existed in Bombay in March, 1929.

The Saraswat Co-operative Housing Society.—The Saraswat Co-operative Housing Society, which was founded in 1915, is the oldest of these societies. The society was particularly fortunate in obtaining a loan of Rs. 24,000, at 4 per cent interest, from a public-spirited individual, the then president of the association; and land, costing another Rs. 22,000, from the Improvement Trust at $4\frac{1}{2}$ per cent. Although the society had an idea of moving towards the suburbs, it considered it would be prudent to eliminate every risk at the commencement, and launched a scheme for the construction of independent tenement blocks, two stories high, each floor consisting of two bedrooms, a hall, a kitchen, an independent bathroom and a W.C.—at Gamdevi. Each building cost about Rs. 24,000, including electric fittings, out-houses, a compound wall, and all other incidentals. The monthly rent for each tenement is fixed at Rs. 25, Rs. 30 and Rs. 33 on the ground, first and second floors respectively, with an additional charge of Rs. 3 to cover all outgoings. The rents are sufficient to meet all repairs and the sinking fund, and leave a margin of five per cent net for interest on capital. Each tenant was required to contribute one-third of the cost of his residence, to be paid in lump or in instalments, according to individual convenience. Only 42 per cent of the total area has been built upon—the rest being converted into a garden. The society is working on the tenant co-partnership system and the houses built are the joint property of all the members. Both the interest on loans and dividends on shares are limited to five per cent by rules. All the profits are spent for the provision of amenities and comforts for the residents. So long as the tenant behaves himself, he holds a fixed tenure on the house on a reasonable rent, but if he so desires he can get back his investments and leave the society without any difficulty.

He, however, cannot rent or lease the house to an individual who is not a member of the society.¹

Other Co-operative Housing Societies in Bombay.—

The Kanara Goud Saraswat Co-operative Housing Society is another co-partnership society which owns 19 buildings with 26 tenements. Some part of the land in the colony has been reserved for those members who want to construct their own houses. The colony has been beautifully laid out, and is a model which could well be copied by others. The Bombay Catholic Housing Society, which has now got 26 tenements in 22 buildings, has obtained a loan of rupees six lakhs and a site worth another lakh, a part of which it is proposed to utilise for constructing houses on the hire and purchase system. The Gaud Saraswat Brahmin Co-operative Housing Society has also made notable progress, and erected a fine set of buildings at Matunga on the co-operative system. The Dakshini Brahmin Co-operative Housing Society and the Saraswat Suburban Society have also made progress, the former having obtained a loan from the government. The Luxmi Co-operative Housing Society and the Hindu Friends Co-operative Housing Society have made their own buildings and worked without any aid from the government. The Parsi Central Co-operative Housing Society is working on co-partnership lines, but has also constructed a building on the hire and purchase system. Besides these there are others, which have been working with various degrees of success.

Some Moffusil Societies.—In the *moffusil* also co-operative housing societies are being organised. Thus there are two societies in Dharwar, both of which have done good work and built a number of fine buildings on the outskirts of the town. One of these, the Reddi Co-operative Housing Society, got a loan of Rs. 50,000 from the Bombay Government. The Indian Christian Society of Nagar, in the Ahmednagar district, has constructed two- and four-room tenements for its poor members, and rented them at Rs. 5 and Rs. 10 respectively per month. It has now got a little colony of its own in healthy and sanitary surroundings. One of the new societies in the Dharwar district is a purely rural housing society. The Saraswat Brahmin Society, at Poona, completed 13 buildings in 1928. Twelve societies have been registered in Ahmedabad. Several of these have

¹ S. S. Talmaki, *The Saraswat Co-operative Housing Society, Ltd., Its History and Working.*

constructed houses in the city. In Karachi there are 9 societies. Out of these, the Muslim and Karachi Parsi Housing Societies have been doing very well.

Co-operative Finance in Bombay.—The working capital of all the societies in the Bombay presidency in 1928 was Rs. 88,21,286, out of which Rs. 17½ lakhs represents the share capital and 1½ lakhs reserve fund. Government loans amount to over Rs. 30 lakhs. The Bombay Government has really done the pioneer work in this respect, and has given loans more or less freely to co-operative housing societies at comparatively cheap rates of interest. In 1924 the rate of interest, which was then six per cent, was reduced to five per cent, because the societies were suffering from a depression in trade and a fall in the price of building materials.¹

Co-operation in Madras.—In 1923 the Madras Government also realised the necessity of encouraging co-operative building societies, and adopted a policy of advancing loans on fair conditions for the construction of houses. So that, of the co-operative societies registered during the year 1927–28, 121 were building societies. The paid-up share capital of these societies was over 8 lakhs and 17 lakhs of Government loans were outstanding in 1928. These loans are repayable either in 20 annual instalments with interest at 6½ per cent, or in 20 equated annual payments. Eight hundred and eighty-one houses were constructed by 1928, and 350 houses were still under construction. In some societies the board of management undertakes building operations as the agent of the members, in others the members make their own arrangements. In some societies both methods are adopted.

A co-operative society in Madras city, consisting of Adi Dravidas, living in Narayana Swami Gardens, Adyar, has been able, without government assistance, to secure house sites for its members, who already owned the superstructures erected thereon, through the Christian Central Bank, which gave a loan, repayable in ten years, for the purpose. Here each member has to pay monthly as rent a sum equal to 6 per cent of the value fixed for his site, and also invests an equal sum in a provident fund, on which the society allows compound interest at 6½ per cent. The members can neither withdraw any amount from the provident fund nor borrow any money on that security, but can transfer the deposit, with the house and the

¹ *Report of the Registrar, Co-operative Societies, for 1928–29.*

occupancy of the site, to any other *member*. When the sum in the provident fund account is equal to the value of the site, the society will adjust the amount towards the purchase of the site, and the member will cease paying rent.¹

Co-operative Housing at Indore.—At Indore also a co-operative housing company was formed to secure house accommodation for mill-hands and the middle class people on co-operative lines. This has just started work. It has collected shares to the extent of Rs. 450 and has deposits amounting to Rs. 3,000. A *chawl* has been taken on mortgage, where a few mill-hands are accommodated. The government has been approached to give a suitable plot of land, and, when it is given, construction of houses will be taken in hand.²

Co-operation in the U.P.—In Cawnpore, the Christian Co-operative Housing Society is the only society which has been trying to make some headway in the same direction, but has not been able to undertake actual work up till now, on account of the want of funds. In Bulandshahar, however, a society has been successfully formed for the purpose of erecting houses for middle class government servants on co-operative lines. The active interest taken by the local magistrate has been the real cause of the society's success. New societies have recently been started in Lucknow, Aligarha and Basti. But these have not been able to make much headway so far.

Very little is known about the advance of co-operation in the sphere of housing in Bengal. Recently, however, Lord Lytton, the Governor of Bengal, conferred with some people interested in the movement, and assured them of his personal sympathy and that of his government, if some workable scheme was brought forward. It may be hoped that, as a result of such encouragement, co-operative housing might progress in that presidency also.

The Model Town Society, Lahore.—But the most ambitious and far-reaching scheme of housing on co-operative lines in India is in progress at Lahore, under the guidance of a few enthusiasts, headed by Diwan Khem Chand. Here a residential town is being built on the garden city plan, in order to find healthy and decent house accommodation for the upper middle class people, who

¹ *Report of the Registrar, Co-operative Societies, Madras, 1923-24.*

² *Report on the Working of Co-operative Societies, Indore, 1923-24.*

have to work in Lahore but cannot find comfortable and commodious houses at a reasonable price in the city. A co-operative society, under the name of the Model Town Society, Ltd., was registered early in 1922, and a square plot of 1,963 acres of the Rakh Kot Lakhpat, in the vicinity of Lahore, was acquired from the government on the 5th January, 1923, for the purpose, at a cost of Rs. 400 per acre. The Grand Trunk Road touches the land for over two miles, while Lahore city is only three miles from it. The Lahore Canal is hardly half a mile away from the land, and the Karachi railway line touches it at one corner. The soil is very good and the plot has a luxuriant growth of *shisham*, *eucalyptus* and mulberry trees. The society has scientifically laid out the whole town, with a big flower garden in the centre, surrounded by public buildings, clubs, schools, hospital, post office, market, co-operative stores, etc. The houses, which have been divided into three broad classes, are all intended to be detached buildings, each with a garden all round; and will be located on four roads, running east to west and north to south in concentric squares around them; so that each house may have almost equal advantages of site and locality.¹ Only members of the Model Town Society, Ltd., can acquire sites for houses, and no man can acquire more than two plots. The value of each share is Rs. 100, on which no dividend is paid. Houses can either be constructed by the society or by the individual himself, but the plan has to be approved by the society; and no additions or alterations in the house can be made without its sanction. In certain cases the society also advances loans to members, up to half the total cost of the house, at an interest of 9 per cent per annum. All the public buildings, roads, conservancy, drainage, lighting, waterworks, etc., will be constructed and looked after by the society, for which Rs. 20 to Rs. 25 lakhs will be obtained from the sale of house sites. By the 31st August, 1924, membership had gone up to 789, and 731 house sites had been booked. The allotment of house sites has already been made, building materials collected, and the actual construction is in progress. A few families are already living in bungalows in the model town, while the offices of the society have been located on the spot; and meetings of the managing committee, etc., are held in the society's buildings. A post office has been opened and a motor bus service for Lahore

¹ Diwan Khem Chand, *The Model Town, Lahore*.

introduced on behalf of the society. It may be hoped with confidence that within a few years a beautiful, healthy and flourishing town will come into existence. Practically no loan or other outside help has so far been necessary, and it is expected that none will be required. The middle class housing problem has thus been solved without any cost to anybody and in a most satisfactory manner.

Difficulties in the Housing of the Working-classes.—

In the case of the poorer classes, however, the problem is not so easy. The lower middle class people as a whole, and the working-classes in particular, can hardly pay their share capital—let alone the price of the site and the structures. All that they may be capable of is the payment of interest on the outlay, in the form of rent, and in some cases a part of the principal and sinking fund also, if spread over a period of at least thirty to forty years. Even that may prove difficult at the present time, unless the government or some other philanthropic people come forward to advance money for the purpose on nominal interest.

Government Advances and Loans.—In the absence of mortgage banks or adequate government and municipal aid, the work of a co-operative housing society is really very difficult; and this accounts for the extremely slow progress that has been made up till now. The few societies which exist in Bombay, Madras or the Punjab are almost confined to the upper middle class people, who can afford to invest substantial amounts of money themselves, and are also educated and enlightened persons. For them, it may be admitted, the economies effected by the collective purchase of building materials, efficient management, low interest on loans, etc., which co-operation affords, may sometimes be a sufficient inducement; but the lower middle classes or the poorer people cannot be expected, in these times of high building costs, to make houses for themselves in that way. With the example of England, Germany and the other foreign countries before us, where, in spite of the popularity of co-operative methods and the advance of education, etc., co-operative building societies could not prosper among the ordinary people till profuse state aid, in the form of free grants-in-aid, advances and long term loans were offered to the co-operatives, it is not at all strange that co-partnership tenants have remained more or less utopian in India up to the present time. Considering the great benefits that co-operation confers on the social, moral, economic and political conditions of the poorer people, the desirability of its encouragement among

the poorer people in India, through a proper system of advances and long period loans on behalf of the government, cannot be over emphasized. The fixity of tenure, the better upkeep of houses on the part of the tenants, improved sanitation and health, which are the necessary accompaniments of co-partnership estates, are sufficient grounds for such assistance.

CHAPTER XV

COURTYARD HOUSES AND COTTAGES

Housing and Social Habits.—Closely connected with the development of industrial suburbs and working-men's colonies is the question of the design of houses. The average Indian labourer, uneducated, uncultured, superstitious and conservative that he is, has got his own prejudices, social customs and habits, to which he clings tenaciously. Anything which seeks to interfere with the same is looked upon with suspicion and is strongly resented. No scheme can, accordingly, be successful which does not make as much allowance for their prejudices as is possible, with due regard to scientific and hygienic methods. In fact, much of the ill will and disharmony among the work-people and the employers at the present time in India is due to this want of an adequate understanding of the Indian labourers' likes and dislikes on the part of the mill managers. It is this lack of sympathy with the labourer's failings that retards economic progress and welfare.

Another important factor, which sometimes contributes in no small degree to chaos and confusion, is the indiscriminate and thoughtless application of Western ideas and methods to Indian conditions, without regard to their adaptability to the new social, economic and geographic conditions. Without prejudicing our mind with these common errors, and guarding ourselves also against the opposite, and perhaps worse, tendency, to uphold indigenous customs and institutions regardless of their worth or utility, we shall try to consider what design of dwelling house would be most suitable for Indian conditions.

Defects of Courtyard Houses.—From the British or the American point of view, the Indian courtyard house, especially when the yard is surrounded by rooms, is, without doubt, insanitary, unhygienic and absolutely out of date. The difficulty of through ventilation in such houses is undoubtedly serious and manifest. The danger of overcrowding and overbuilding also cannot be dismissed easily. Adequate and effective control and supervision, on the part of municipal bodies, may help to minimise these evils, but their existence cannot be denied. Moreover, when several families live

together on account of poverty—and this is made easier in India on account of the joint-family system and the communal habits of the people—insanitary and unhealthy conditions are bound to develop, as is clear in Calcutta, Cawnpore, Howrah and the jute mill *bastis*, where the courtyard house is still popular among the poorest class of labourers. These disadvantages are fairly serious, and undoubtedly call for an effective remedy. Most of these defects, however, are true only of places where land is scarce, and land values accordingly high.

Their Antiquity and Popularity.—On the other hand, it cannot be gainsaid that the courtyard house has not only persisted in India from the earliest times, but in almost all the earlier civilisations it held undisputed sway. In Rome, in Greece, in Persia and in Egypt the courtyard house has alike been the model. But we need not look into old records and antiquarian researches for the popularity of the courtyard house. Its adaptation to the temperate and tropical zones is manifest by its wide prevalence in those climates even to-day. The Mediterranean region, comprising Turkey, Asia Minor, Greece, Italy, Southern France and Spain; no less than Mexico, California, and, in fact, the whole of southern and central America, combined with the southern states of the United States themselves, all abound in courtyard houses. The stateliest and most magnificent palaces of Mexico, Italy and Turkey have all been adapted to the courtyard type.

Special Advantages of Courtyard Houses in India.—But world-wide popularity and historical antiquity are not sufficient or strong reasons for their continuance and extension in India to-day. It is their climatic and social advantages that mark them out, among all other types, as exceptionally useful and fit for Indian conditions. Security from hot winds, and the shade that they afford during summer, are the chief climatic causes which determine their preference over the others; while the quiet homeliness and privacy which they provide for the *purdah* ladies are their clear social advantages, both from the Hindu and the Muhammadan points of view. The value of fresh air, and the open space provided by the courtyard, is considerably enhanced by the practice of growing medicinal herbs, flower plants or vegetable creepers. The sacred *tulsi* plant, the Indian basil, which has now been discovered to be a very valuable anti-malarial herb, and which is universally worshipped by the Hindu ladies, peculiarly combines in itself spirituality and

health, and sheds its luxuriant lustre in most Indian courtyards. Here the ladies can enjoy freely fresh air and sunshine and attend to their children. Among the Muhammadans as a class, and among the high-caste Hindus, this is the decisive factor, while among the others also it is a great inducement.

The houses described in the ancient classics are typical and representative of Indian village life, and are designed to suit the requirements and tastes of all classes of people. Although the plan and appearance of the house required by the Brahmin, the agriculturist, the shepherd, the artisan and the labourer are slightly different, the courtyard is alike found necessary for all. The simple, quiet huts of the people, though different in different localities, in the typical ancient village lent a special charm and attractiveness by the method of utilising the courtyard in each kind of residence to the best possible use of the dwellers within, and without sacrificing any element of the essential physical qualities which a home should have.

Special Drawbacks of Courtyard Houses.—All the same, it is true that a courtyard house depends for its health on the free access of the sun, which in temperate and also tropical regions is easily secured. But in houses which are particularly high, or where the courtyard is exceptionally small, adequate sunshine may not be obtainable even in the warm regions. In such cases the courtyard house becomes necessarily insanitary and tuberculous, and cannot too strongly be deprecated. Thus, a properly controlled courtyard house system will not only be adaptable to the social and religious customs and usages of the average Indian, but, in the pregnant words of Professor Geddes, will be in accordance with the principles of geography and anthropology—a rational adaptation of peoples' dwellings to their environment, social conditions and family life. But the necessity of controlling the height of the buildings and the size of the courtyard in such houses, as has been pointed out before, cannot too strongly be emphasized. In fact, their usefulness will depend entirely upon that control. In bigger cities, where land values are high, there is a very great incentive to overlook or under-estimate the importance of this check. This is disastrous, and, in fact, is the cause of all the prejudice against this system. A common defect in courtyard houses is the insufficient number and the small size of ventilators in the rooms. When the roof is flat, and the depth of the rooms great, this defect is vital, because it renders the rooms dark and stuffy.

A Plea for Kachcha Houses.—The rural practice of plastering the inner walls of the rooms with mud, instead of with cement and lime, and, more often, of making the walls entirely of mud, no doubt keeps the rooms cool and comfortable during summer days and warm in winter nights. The *kachcha* house has also the additional advantage of cheapness. It neither requires any costly materials nor the services of specialised bricklayers; while, on the other hand, an appreciable amount of the labour itself can be supplied by the workman and his family. It, however, creates facilities for the spread of rats. If, accordingly, an effective remedy against rats could be found in brick plinths and other vulnerable portions, then the *kachcha* house would be the ideal Indian village home—one which could with advantage be imitated in the proposed industrial suburbs or workmen's colonies by those labourers who want to construct their own houses. The diversified roofs of straw, grass, palm or coconut leaves, which they admit, easily accommodate every purse, taste and environment, while the huts look cosy and modest.

Housing by Employers and Public Bodies.—For the large class of labourers, however, who have to be housed by the employers, the private builders, or the community, more substantial and durable structures are necessary in order to save the trouble of periodical repairs and constant care. Moreover, in towns and cities some expenditure on uniformity and outward appearance also may be permissible. In short, a house which would be adequate to the needs of a family, healthful and sanitary in every respect, durable and pleasurable to the eye, both from inside and outside; and yet cheap enough for the poorest class of people, is needed. An absolutely detached house, answering all the above requirements, may be considered to be wellnigh impossible at the present time, when the price of building materials has risen so high. Blocks of not more than two, three or four houses may, however, be constructed, in order to ensure open air from two sides for every house.

Minimum Housing Requirements for a Family.—A house with two living rooms, a verandah and a kitchen, with a small yard, enclosed with a wall about six feet high, should be the ideal, but, to begin with, even houses consisting of one living room, 12 ft. by 8 ft., a verandah, 5 ft. by 12 ft., and a kitchen, 6 ft. by 8 ft., with an enclosed yard, 12 ft. by 16 ft., may be considered as fairly adequate and satisfactory. The living room must have at least two ventilators

between the roof of the room and the verandah, and opening on the two open sides ; while the kitchen must have a fairly big chimney and windows. The floor of the verandah may be *kachcha*, but the kitchen should, as far as possible, be cemented. All the walls should be of brick and mortar or concrete—rat-proof—and provided with a fair number of notches or shelves to store things. The general elevation of the house should rise from the east and the north towards the west and the south, so that sun and air may meet with the least obstruction in entering the house. People may be encouraged to grow vegetables and other creepers or plants in the yard, so that the plants may consume all the water which may be thrown from the kitchen, thus dispensing with the need of costly drainage works, and that the whole place may look like a real garden city. Rents should be low, sufficient only to cover a small interest on the outlay and the depreciation charges. A premium should be put on letting on the hire and purchase system, in order both to encourage people to settle down in them and to create a house-pride among them.

The Experiment in Jamshedpur.—In Jamshedpur the experiment has been tried most successfully. Here the Tata Iron and Steel Corporation has constructed a large number of houses for various grades of labourers engaged by it. Houses of the poorest class, let at Re. 1 and Rs. 2 per mensem, are provided with an enclosed yard and a small kitchen, over and above a well-ventilated room and verandah—all made of *pucca* brick and mortar. That these amenities are appreciated by the working-folk is proved by the fact that most of them lead healthy and joyful lives, and have made Jamshedpur their home and seldom leave it ; while the rarity of tubercular and other diseases in the town speak volumes in favour of their wide imitation.

The Cottage Type of Houses.—A word may here be said about the cottage type of houses, which have been widely recommended by most English engineers and sanitarians. It is undeniable that the cottage type has manifest advantages over the others as regards ventilation and openness. The dangers of overcrowding are also fewer in the cottage type, but it affords neither sufficient shade nor privacy to the ladies, where they may enjoy fresh air on sultry nights without reserve. The persistence of the courtyard type of houses, in spite of the fact that the educated classes are giving up the *purdah* system, clearly shows its suitability to temperate climates. Rightly does

Professor Geddes remark, in this connection, that 'though each race of men and each civilisation may have something to learn from others, the ways of life in sunny conditions are not necessarily mistaken, nor inferior for their requirements, because differing from those of the northern and cloudy ones, with their low sun.'¹

General Suitability of the Courtyard Type.—Thus, whether we judge it from the standpoint of geographical adaptability, anthropological suitability, or social and family traditions, the courtyard house recommends itself unmistakably except in the bigger and the more congested cities, where, on account of the high land values, there is a danger of such houses being over-built and overcrowded. Even in towns and smaller cities a watchful and effective control over such buildings is necessary, because of the dangers of their getting unhealthy and insanitary.

A house which gives joy to its owners and to those who live in it has an air of happiness. The attachment of home is deep-rooted in the hearts of people of all classes in India, and, therefore, the best incentive to the improvement of houses is ownership, which not only gives pleasure and pride to the individual, but spurs him to greater and greater efforts to maintain and improve it.

¹ Patrick Geddes, *Report on Burra Bazaar Improvement, Calcutta.*

CHAPTER XVI

GARDEN CITIES AND INDUSTRIAL SUBURBS

City and Village Life.—High rents, congestion, dirt, and squalor have made city life not only expensive, but unhealthy and unnatural. The invariable desire of the city dweller, be he a millionaire, a professional man or a labourer, is to have a place in the country, where he may spend a couple of months whenever he is able to extricate himself from the drudgery and squalor of the town. Few, if any, wish to make the city their home. At best it is considered as an inevitable accompaniment of the existing order—an evil which is unavoidable. For the agriculturist, in particular, who has been used to open-air life, courtyard houses and green fields all around, the dark and dingy one-room tenements, amidst depressing surroundings, appear at once unnatural and unbearable. But his circumstances leave him no other choice, with unemployment and starvation staring him in the face in the village. His extreme poverty, rank ignorance, and pessimistic outlook suggest to him no alternative. Thus he lives in the city, although he can never be of it.

Effect of the Misdirection of Industry.—But let us consider for a moment if congested and unhygienic living are the inevitable fate of the man who has to live in the city. Are industrialism and squalor inseparable? The advent of the garden city movement, the spread of the doctrine of town-planning and the municipal control of the location of factories in Great Britain, Germany and America, have clearly demonstrated that the present confusion and disorder in our cities are due, not to any inherent defect in large-scale production, but to the misdirection of industry and the absence of that control and guidance which are necessary in a transitional stage of such importance. The greatest defect of the *laissez faire* doctrine is that it disregards the plain fact that private individuals cannot and will not care for the so-called social and national interests, if they find that they in any way clash with their individual and selfish interests. Thus, when the individual finds that he can earn a few more farthings by crowding together factories, houses, or shops, he will do it, and crowded conditions will continue in cities. A check is thus manifestly needed

to the freedom of the capitalist to locate factories in the heart of the city, or amidst residential and business quarters. As soon as this is done, and the factories are shifted to the outskirts of the city, the labouring population would itself discard the congested quarters of the city, and find more healthful and decent homes in the open country in the vicinity of the factories. Here the land being cheap, and the environments more congenial and adaptable to the workers, their homes would necessarily be of a more permanent character.

Garden Cities.—Garden cities, workmen's colonies and industrial suburbs have variously been planned in the West to get over the difficulties of congestion in cities, while the latter themselves have been saved from further disorderly growth and vastly improved by proper regulations and by town-planning schemes. The term, 'garden city,' first emanated in 1898 from Ebenezer Howard, who carefully defined and expounded the idea in his book, *To-morrow*, subsequently named *Garden Cities of To-morrow*. The term has since been very loosely used, but according to him a garden city is 'A town planned for industry and high living; of a size that makes possible a full measure of social life, but not larger; surrounded by a permanent belt of rural land; the whole of the land being in public ownership or held in trust for the community.' According to him, the garden city is not merely a residential estate with special amenities. It is not a mere plan but a creative organisation, a combination of individual, municipal and industrial effort. It is manifestly of a limited size, with not more than about half a lakh of inhabitants, and is intended to grow little, if at all. So that, if the demand increases, another garden city springs up near it, and thus the identity and individuality of each is retained for all time.

Houses with Gardens.—The houses are simple, yet attractive places of bodily health and spiritual refreshment, pleasant to live in and to visit. Each house is provided with a spacious garden, and is subject to such regulations as will ensure its proper upkeep, so that it may not mar the appearance of the city as a whole by individual neglect. The residents are also encouraged to decorate and embellish them, with the expectation of spending their lives in them. Thus every town is, in the words of Purdom, 'a picture of the minds of its inhabitants—their civic personality.' The garden city, in short, is a piece of art and beauty, so that it is not only a pleasure to the æsthetic sense, but also spurs its residents to right conduct.

It may not here too strongly be emphasized that mean and ugly deeds are apt to be enacted in ugly buildings or streets. The assassin, the robber, the thief, all seek darkness and gloom, and are visibly afraid of open squares, broad thoroughfares, parks and public buildings.

Order and Beauty.—A garden city does not only look to proper city sanitation and waste disposal, the laying out of streets, gardens, public and semi-public structures, but also to the architectural as well as hygienic design of buildings, and the accommodation of different classes of people in suitable parts and in classes of structures best suited to their requirements. Both the number of houses per acre and the number of people per room are closely regulated. Public buildings, roads, parks, squares, etc., are all clearly marked out and determined according to some well thought out plan, yet absolute uniformity and monotony are avoided in order to maintain the individuality and natural beauty of each place. The garden city is principally a place of residence, though industries of all kinds can be accommodated if hygienically planned and if advantage is taken of the latest devices for the elimination or due control of smoke, sound and unhealthy excreta. With proper sanitary and hygienic methods, Welwyn, one of the foremost garden cities of England, has been able to find in it a place for one of the biggest slaughter-houses in the country, which supplies meat to a large part of the country around it. A garden city is thus not a detached entity, but is closely connected with, and also within easy reach of, other industrial and commercial cities.

Some Restrictions and Regulations.—Such garden cities have been brought into existence at various places in England, Germany and the United States of America, no less than on the Continent. Letchworth, Welwyn, Bourneville and Port Sunlight are some of the many important garden cities of England, which relieve the pressure in the big industrial and commercial cities of London, Birmingham, Liverpool, etc. No building in these places is permitted to cover more than a fourth of the plot which it occupies; and generally not more than ten to twelve houses, or 30 people, are allowed on each acre of land. Over and above these wholesome restrictions, extensive plots, in some cases covering over two-thirds of the total, are reserved for parks, gardens, roads, bridges, etc. Particular attention is paid to the width of roads in order to ensure speedy and uninterrupted communications, while wholesome regu-

lations are made for the control of both vehicular and pedestrian traffic, in order to save time, worry and accidents.

Types of Garden Cities or Villages.—There are three distinct types of garden cities or villages—proprietary, joint-stock and co-operative, according as they are owned and operated by an individual, a joint-stock company, or co-partnership tenants respectively. In the first case the operator is generally an enlightened employer of labour who plans a model village for his employees, such as Port Sunlight under Lever Brothers, and Bourneville under Cadbury Brothers, Dormantown under Dorman Long & Co., and the village opposite the Tees built by C. Furness & Co., all in Great Britain; or like the extensive activities of the firm of Krupps, at Essen, in Germany; or like Jamshedpur, planned by the Tatas, in India. Although they are all beneficial institutions and provide healthy and decent accommodation, as also other amenities of life to the workmen, the residents enjoy little autonomy and have accordingly no interest in the progress and improvement of the houses and surroundings. Letchworth is the bright example of a model garden city having grown up under the ægis of a joint-stock company. Here the rise of land values and houses, due to proper development and planning, has been so great that, but for the limitation of profits and the provision of greater and greater amenities of life and other conveniences to the inhabitants, the shareholders could have made fortunes for themselves. Hampstead Tenants and Ealing Tenants, as also the Liverpool garden suburb, are examples of some of the purest and most successful types of garden cities, which are run on co-partnership lines, and have the greatest amount of conscious co-operative life; while in India itself far-reaching results have been obtained by the Model Town Society, Ltd., at Lahore. These, however, have already been discussed more fully elsewhere.

In Germany, Italy and on the Continent, as in England, the garden city movement has been very active during recent years. Essen, Hellarau, Ulm, Cronenburg, Alfredshof, Freidrichshof, Altenhof, etc., are the early prototypes of garden cities, or rather industrial suburbs, in Germany. In America, Forest Hills Gardens are among the first of the type near New York. Many others are, however, growing up and are in the process of formation.

The Ideal of the Garden City.—The garden cities everywhere have ushered in an era of health and prosperity amongst the people in place of squalor, disease and poverty, and there can be no

two opinions that they must be the ideal towards which all attempts to tackle the problem of housing in cities must tend. Looked at from the point of view of physical development, æsthetic sense, or moral and economic welfare, the garden city remains a model. In India, particularly, where the ideals, tendencies and the past traditions of the people, no less than the geographical and climatic peculiarities of the country, favour open-air life and green surroundings, which modern industrial and commercial cities can ill afford, we should have little difficulty in fixing our ideal.

The Garden Cities Operated by Employers.—The growth of garden cities in the West has, however, brought to light two special problems—first that of cost and the other that of ownership. The latter has been brought to the surface because of the fact that some rich industrialists have taken upon themselves the task of operating such cities for the benefit of their workmen, and the latter have lost some degree of freedom. The power wielded by the industrialist over the workmen is great, and has proved in some cases to be inimical to their self-respect and economic status. The double trusteeship of the bread as well as of the home of the workers, centered in the capitalist, is certainly undesirable, and people in America seem to have tracked the dangers of this industrial servitude. The difficulties arising from such circumstances can, however, be overcome, or at least considerably diminished, if each garden city accommodates workmen of two or more independent factories, or if the government makes facilities of cheap credit and land for the purpose, conditional on the employers limiting their power of eviction, etc.

Garden Cities in Ancient India.—Garden cities have not been unknown to India. A close study of the numerous temple cities of south India will show the perfection to which the art of town-planning had reached in India several centuries before Christ. Tamil literature is full of vivid details as to the laying out of towns in ancient times. The temple was almost invariably the starting place from which, and in conformity with which, the broad streets, the markets, the dwelling houses, the parks, gardens, tanks, playgrounds, meeting places, etc., were all beautifully and methodically laid out. Separate parts were assigned to different classes of people, who lived in houses each suited to their particular requirements and tastes. Mr. Venkatarama Ayyar has shown how, in Kaveripattanam, as also in Madura, Conjeeveram and other

garden towns in the south, 'the leading merchants, the pious Brahmins, the thrifty farmers, the ayurvedic physicians, and the astrologers lived in different types of houses appropriate to each class of people, the various designs presenting by contrast a picturesque sight.'¹ The small workshops and manufactories, on the other hand, were established as near as possible to the outer edge of the town, so as to afford the labouring portion of the population full enjoyment of the open air, and ensure due facilities for industrial development. Not less remarkable in design and lay-out is such a north Indian city as Jaipur, with its spacious roads and boulevards in parallel lines, and magnificently built residences, fully utilising the hills and natural lakes, with their historic palaces and temples, in relation to the necessities of city expansion.

The Temple Cities.—The Indian temple, however, incorporates almost all the fundamental ideas and essentials of town-planning, and is, in fact, a city in miniature, just as the Indian town-plan reproduces the different features of Indian village life. 'The *gopurams* of the temple,' observes Dr. Mukerjee, 'represent the "cattle forts" of the village, the spacious corridors that lead up to the holy shrine are the spacious roads, *rajmargas*, of the city, leading up to the royal palace at the four cross ways; and those which form the *pradakshina patha* represent the *mangal vithi*. There is also the *mandapam* of the shrine, where devotees congregate, even as citizens congregate in the council hall. . . . Not only are there roads and drains, wells and tanks, rest-rooms and discourse hall in the temple, carefully ordered as in the city, but also markets with their stalls.'² This is not only true of the temples of the south but even of many temples in the north. Thus the Baikuntha and Kailasha temples in Cawnpore, the Vishvanatha and the Annapurna temples with their adjuncts in Benares, the huge temple of Gopeshwar Mahadeo in Mathura, etc., which serve as places of worship for the devotees, and fortifications for the residents in times of internal commotion, remind the careful student of the ideals of Indian town-planning, their far-sighted vision and scrupulous care of details.

Garden Cities in Modern India.—At present, however, we have practically no example of a garden city in India. The railway

¹ C. P. Venkatarama Ayyar, *Town-planning in Ancient Deccan*, pp. 86-87.

² Dr. R. K. Mukerjee, *Comparative Economics*, Vol. II, p. 343.

settlements at Lillooah, Kharagpore, Kanchrapara, Jamalpur, Alam-bagh, Gorakhpur, etc., as has already been mentioned, are yet too imperfect and disorganised to have even the semblance of garden cities. The workmen's villages attached to the Buckingham and Carnatic Mills, near Madras, are at best industrial suburbs with some amenities. The projected workmen's colony at Indora, near Nagpur, for the operatives of the Empress Mills, and similar undertakings at Bangalore and Indore, again, are hardly even the prototypes of garden cities. It cannot, however, be denied that they are all commendable undertakings, which deserve more recognition and encouragement at the hands of the public and the government than they have so far received. In fact, it is on these lines that the solution of India's industrial problems as a whole lies. Poor as the country is, she can at present hardly afford the comfort of garden cities in every industrial centre, although they must undoubtedly remain her ideal. In Lahore, no doubt, an attempt is being made to lay out a model residential village for the upper middle class people on the garden city plan; and it may be hoped that within a couple of years a healthy, beautiful, and picturesque town will come into existence, and inspire others towards similar and more ambitious attempts.

Jamshedpur.—At Jamshedpur also the beginnings of a garden city have been laid. Here different grades of people have been housed in quarters suitable for each; and roads, schools, hospitals, waterworks, parks, gardens, and other public buildings located at suitable places. The humblest cottage of the unskilled labourer has got its yard, which has been invariably decorated with green plants and vegetable creepers. The number of houses per acre has also been limited to 12 in the case of those built by the company; while a maximum of 20 per acre have been allowed in the case of exceptionally poor labourers, who build small huts of straw and earth for themselves. Even here one inevitably finds vegetable creepers and other plants flourishing around the huts and on all sides of the *bastis*. The drainage, lighting and water arrangements are all properly looked after. There are, however, two serious defects which mark out Jamshedpur from garden cities proper. Firstly, the entire land and property is in the possession of the company, and the private individual or the community have got few rights; and, secondly, while garden cities very strictly regulate and limit their population, in Jamshedpur there is no restriction; so that all the

people engaged in the steel industry, together with all those who are directly or indirectly connected with them, are crowded in the city. Within ten years, from 1910 to 1921, the population of the town grew over ten times, while to-day it is considerably larger. Although in the beginning the company tried its best to meet the growing demand of the population, it is now evident that it was not possible indefinitely to satisfy the insatiable hunger of house-room within the four corners of the town. In the absence of checks, Jamshedpur is also treading upon the road to congestion, squalor and disease, which is the inevitable lot of most of our industrial towns to-day. Thus we see that, with the best of intentions and the most humanitarian motives, Jamshedpur is being turned from a healthy, beautiful and lovely place into an overcrowded, squalid and dirty city.

Unregulated Growth of Indian Towns.—Apart, however, from the laying out of garden cities and industrial suburbs for the increasing labour population and the middle classes in the industrial cities, much of the dirt and squalor, as also the congestion and insanitation, which are a common feature of Indian towns to-day, can be overcome by a proper planning of the towns. Most of our towns present a haphazard growth, and little care has been taken either to visualise the needs of the future or the proper co-ordination of existing conditions and requirements. In fact, our towns have grown, and are growing, without any check or hindrance on account of the absence of any law, central or local, and more on account of the lack of civic education or interest among the people. The few building and other sanitary bye-laws which exist in the municipal codes have become a dead letter by convention. So much so, that some executive councillors and officers of the bigger municipalities confessed, during our interviews, that they would have to vacate their posts the next day if they were to try to put those bye-laws into force. Thus, oil and steam engines and bigger factories are every day springing up in the heart of the residential areas, in not a few of our industrial and other cities.

Open drains and dirty, narrow lanes between buildings, several stories high, are common. The disposal of refuse matter and sewage is as crude as possible, while of drainage there is none in many parts. Long, unsightly rows of back-to-back one-room tenements, which disfigure our industrial towns, are multiplying without any protest. Markets, residential areas,

public places, recreation grounds and factories are so hopelessly and unsystematically muddled together that the town-planner would find his task almost hopeless, unless he is to begin on an absolutely clean slate. And yet nobody thinks of town-planning seriously! Even future developments are left to take care of themselves. It is hardly realised that the saving of the insignificant expenditure that city-planning may require at present will have to be repaid a hundred times, if things are left to themselves for another decade; for cities are, after all, growing in India, and there are innumerable mill and mining towns, whose growth has to be but regulated on proper scientific lines in order to evolve sanitary and well-planned cities in the future. Thus, both for the improvement of the present disorderly condition of our industrial towns and the restriction of future chaotic growth, a town-planning scheme is urgently needed. For efficiency, for beauty and for dignity, an orderly distribution of the parts which go to make the complete unit, be it city, town or village, is essential. Unity and harmony are essential to beauty, incongruity is an artistic blunder.

The Art of Town-planning.—In the setting out of a town-plan there are several factors whose importance varies with local conditions. Among these factors, the nature of the site deserves foremost consideration. This includes both the traditions and history of the people, as well as the place, its type—whether commercial, industrial, religious, political, educational, strategic, or one or more combined—and, above all, the configuration of the site. Hills, valleys, rivers, lakes, ponds, woods, depressions and mounds will all determine the form of the town-plan; while the prominent features of the surrounding country must also receive careful consideration. In the words of Hughes, 'The lake will suggest a water frontage with important buildings placed in relation to it; the hillside and summit will provide a commanding position for the chief public buildings of the city, and will afford noble approaches and terracing.'¹ In any industrial town, the river, if navigable, will be of the highest importance to the commerce of the place; the factories must be set near it, with their quays and railway sidings, and to the leeward of the rest of the town, both for cheapness and ease of transport. Elevated sites will provide the most favourable and healthy positions for residential quarters, but their position should always be such that

¹ Hughes and Lamborn, *Towns and Town-planning*, p. 134.

the prevailing winds do not carry to them the smoke and fumes of the industrial area.

Traffic and Communications.—The proper lay-out of the general traffic and street lines is another important factor in the town-plan which has not so far received adequate attention. The road system should be planned to serve effectively and equally the commercial, industrial and residential areas. Heavy traffic lines should be diverted towards the industrial areas, and avoid, as far as possible, passing in front of public buildings, offices or residential quarters. These should, however, be served with broad roads, flanked on either side with footpaths and trees. An arterial system of traffic lines, running from the centre to the outskirts of the city, with a proper admixture of ring-roads, to avoid congestion in the centre, may be most commendable. The main roads should, however, be planned from the start with a view to expansion, and should avoid awkward turns in order to ensure speed of traffic.

Open Spaces.—The next important factor in town-planning is health. The plan should admit of a maximum amount of sun and air to every street, house and room; while parks and open spaces, playgrounds and recreation centres, public baths, and town gardens should all be adequately provided. Practical questions of the best means of the disposal of household rubbish, street sweepings, and sewage should be given due consideration. The supply of a sufficient quantity of good water for drinking and washing purposes is also important.

The limitation of the number of houses to the acre and the proportion of building to house site, as also the control of the height and depth of buildings, are essential features of a good town-plan; while the housing of manual workers, as also the other classes, in decent and healthy homes, with easy and cheap access to the industrial centres, is most important. The proper and effective control of insanitary or unscientific building is no less a feature of town-planning.

Limits to the Growth of a Town.—There is a limit beyond which the concentration of population at a given point is economically wasteful and socially and hygienically harmful. The increasing population naturally exerts a growing pressure on its centre. This pressure exhausts the capacity of the area for efficient industrial and commercial service, for transport and accommodation. Further growth brings chaos and confusion. As the Liberal Land Committee

has pointed out in the urban section of its report, this point has long been reached and passed in most of the great cities of the Western world. In India also this stage has long been reached in cities like Bombay, Calcutta, Ahmedabad and Cawnpore. Accordingly, in planning our cities in the future, the report points out, we must realise clearly that the unlimited growth of towns and cities is a thing to be definitely discouraged. Up to a certain point the growth of an urban community means better scope for commercial and industrial enterprise, and a firmer basis of intellectual and artistic life. Beyond that point the gains are more than counter-balanced by the losses. Thus town-planning should not only cater for the proper development of the immediate fringes and residential open land of our great towns, but also the promotion of fresh centres at a distance from the present. In fact, it is becoming increasingly manifest that the ideal urban development involves dealing with urban population and problems in much larger units than are at present represented by the existing municipalities or town councils. It is essential for perfect planning that not only the areas within a town, but also the adjoining areas, with which it is geographically and economically connected, be taken into account; and that the topography, the historical aspects and the general conditions of the whole be properly considered in order to make possible a proper co-ordination of the different points. Areas suitable for different purposes should be marked out, and provided with the necessary means of communication for properly linking one part with the other for efficiency and service.

Ways of Meeting Urban Growth.—The purpose may be achieved either by founding satellite garden suburbs, with a definite relationship to the parent town, although separated from it by intervening belts of agriculture and woodland, in order to prevent them from spreading out to join each other, or by what is called regional planning.

In the past the growth of a town has usually been met with an extension of its municipal jurisdiction over adjacent lands. This was natural because the surrounding districts are very closely related to the city for industry and commerce, education and recreation, and for social and intellectual life. Such absorption cannot be condemned in too strong a language, because it leads to an undue concentration of trade and industry; and intensifies central congestion. Experience has shown that such work may best be left to a regional authority,

representative of the region in which it acts, with power and funds to carry out a detailed survey of the whole region, provide efficient means of communication and to co-ordinate the town-planning schemes of the constituent parts according to a well-thought-out plan. The allocation of areas for the purposes to which they are, or may become, best suited, and their preservation against intrusive use, deserve special attention.

Zoning Regulations.—Strict zoning regulations are also essential, which may prescribe:

- (1) the maximum height of buildings;
- (2) the width of streets and their relation to the height of buildings on both sides;
- (3) the character of buildings, their depth, structure, ventilation, etc.;
- (4) density of houses per acre and the proportion of building areas to total; and
- (5) limits of smoke nuisance from chimneys.

Although special treatment may be necessary in special circumstances, business should necessarily occupy a central situation, but appropriate limitations must be maintained against undue congestion, to which there is always a tendency in such quarters. Industry and commerce, on the other hand, are so intimately connected with transport that their situation on a water frontage, if there is one, and near railroad connections, is indispensable. Higher grounds should always be reserved for residential purposes, while areas particularly suited for use as parks, recreation grounds, and pleasure resorts should always be marked out.

Danger of Monotony.—Above all, sufficient care should be taken to avoid monotony and inartistic designs in buildings and lay-outs. Conditions like those depicted by Dickens in one of his novels are most subversive of human happiness or higher moral life. Writing about East London, he says that 'it contained several large streets, all very like one another, and many small streets, still more like one another, inhabited by people equally like one another, who all went in and out at the same hours, with the same sound, upon the same pavements, to do the same work, and to whom every day was the same as yesterday and to-morrow, and every year the counterpart of the last and the next.'¹

¹ Dickens, *Hard Times*.

Advantages of Zoning.—The fundamental principle upon which zoning is based is sheer common sense. As was pointed out in a report on the subject to the New York Chamber of Commerce, 'The purpose is to prevent the landowner from putting up a building to any height, in any place, of any size, and use it for any purpose, regardless of how much it hurts its neighbours.' In a broader sense zoning regulations promote public safety, health, morals, and general welfare. In practice zoning increases the usefulness and value of buildings. It can be used to lessen congestion in the streets, and is instrumental in reducing the cost of living. We might summarise the beneficial effects of zoning under the following chief heads:

- (1) it relieves traffic congestion, by diverting traffic concerned with different purposes into different channels;
- (2) it assures and increases property values, by allocating different areas to different purposes, and thereby guarantees a particular property for a particular use;
- (3) it saves expense and bother on public utility services, by laying out sewers, water-mains, gas and electric plant, etc., of a proper size and at proper places;
- (4) it stimulates building; and
- (5) it heightens the amenities and the general appearance of cities.

Their Justification.—It will appear from what has been said so far that zoning involves too much interference with the freedom of the individual, and under this system he cannot make the best use of his property. But, as will be seen on proper consideration, zoning involves less restriction on the liberty of the citizens in economic matters than police or legal restrictions involve a curtailment of the political liberty of the people. Just as the Penal Code is a check on the abuses of political license, so also zoning regulations are checks on the abuses of short-sighted private enterprise. Such zoning regulations now exist in most of the cities of the United States of America, as also in Germany, Belgium, France, and even England to some extent. The rapid adoption of zoning in America would be clear from the fact that, although the first comprehensive zoning ordinance was passed in the city of New York as late as 1916, by 1923 one hundred and eighty-two towns, consisting of over 22 million people, and comprising 40 per cent of the urban population of the U.S.A., were living in zoned munici-

palities. By January, 1923, the number of zoned communities had risen to 320, embracing a population of over 24 million people. Another important fact that has been brought to light in this connection is that public opinion in those places has generally veered round, not only in favour of retaining such regulations but even of constantly stiffening them.

Zoning Regulations in India.—In India zoning regulations are still rare. The bigger cities, like Bombay, Calcutta, Madras, etc., no doubt, have got some regulations about the width of public roads, the use of land for factory sites, and the location of liquor shops, etc. But these are not always strictly enforced, and, as has been shown in a previous chapter, dark alleys are common in the poorer quarters. Zoning regulations also exist in some other Indian towns, but, with rare exceptions, they are honoured more in their breach than in their observance.

Regional Planning.—But, while zoning, like ordinary town-planning on a large scale, aims at improving the amenities of the city and to utilise every part to its best advantage by a careful mapping of the area of a town into a series of zones, definitely allocated to specific uses; regional planning aims at the dispersion of the town population and industry over a bigger region, comprising the whole of its hinterland, in order to distribute the population more evenly over the country, and to bring about a closer contact between agriculture and industry, between urban and rural life. Such correlation between the town and the country is infinitely desirable from the point of view of permanent peace and prosperity, to say nothing of order, health, and beauty. Moreover, the value of the oneness of thought, feeling, and action, which such contact is bound to promote between the town dwellers and the rural folk, cannot be estimated in terms of money.

Co-ordination of Agriculture and Industry.—Belgium, the most densely populated country of Europe, has achieved a most even distribution of population by an intimate partnership between industry and farming. A large proportion of its workers in office, shop, factory, or mine, continue to live on the land, to cultivate their own plots in their spare time with the assistance of their wives and children. Every large industrial town in Belgium has its own zone of influence, from which every morning the net-work of light railways gathers in a mass of town workers, and exchanges the goods of the town with the goods of the country. The industrialists,

if they make houses for their labourers, do so two to six miles away from the factory. Thus Liege and the colliery companies of the Mons area draw most of their labour from the districts. All this has been possible on account of the high development of light rail and tramway systems along the roads. Roads, or rather communications, have rightly been called the framework of civilisation, and accordingly this framework must grow stronger and stronger as the structure of civilisation grows.

Importance of Regional Planning in India.—We in India have to learn a great lesson from Belgium, which is and remains a predominantly agricultural country. Our economic, social and moral regeneration will depend upon the extent to which we are able to improve the economic status and enlarge the mental and moral horizon of our rural folk. Nothing can succeed better in this attempt than an intimate and intelligent commingling of agricultural with industrial pursuits, which may be helped to a great extent by proper regional planning and the development of cheap and efficient means of communication. The movement is, however, new and still considerably unexplored, but, from the success it has already achieved in other lands, it promises to play a very important part in solving our civic and economic problems.

Regional Planning in England.—In England, since the passing of the Housing and Town-planning, etc., Act of 1919, till 1925, 32 joint regional planning committees, covering an area of about five million acres and a population of over fourteen millions, had been formed. Most of these committees have in hand comprehensive proposals for zoning and for arterial roads. The first such combination was that of Doncaster area, a rapidly developing colliery district. This plan embraces eight urban and rural district councils, and provides for the development of a series of twelve or more self-contained and well-defined towns within the area, each separated by agricultural belts and playing fields. The widening of existing roads, the provision of new arterial and ring roads, the development of motor bus routes, the improvement of waterways, the prescription of building heights and density of houses per acre, and zoned areas for housing, commerce, industry and agriculture, have all been properly carried out; while due attention has been paid to the preservation of the natural beauty of the district.

In Birmingham, Manchester, London and other places, similar schemes are under consideration, and an attempt is being made to

secure to the community the hygienic advantages of the country together with the social and economic ones of the city.

In the U.S.A.—In the United States of America a very thorough regional survey, covering an area of about 50 miles outside the city boundary, has been undertaken for New York under the Russell Sage Foundation; while in Chicago, Los Angeles, etc., thorough-going and extensive surveys, dealing with matters of sanitation, water-supply, transport, education and zoning are being rapidly carried out.

On the Continent.—In France also several regional schemes for the city of Paris, the Department of the Seine, etc., have been undertaken; while Holland, Denmark and Norway have not lagged very far behind. But the most comprehensive and successful instance of regional planning is furnished by the Ruhr Coal Mining Regional Planning Federation, which comprises an area of 1,482 sq. miles, with a population of about four millions. The regional authority controls an area covered by over 300 local authorities, and plans communications and transport, approves town plans and housing schemes, constructs roads, promotes light railways, assists local authorities, regulates the occupation and use of land, and wields full executive and legislative powers over the whole area. The development of this area was, however, facilitated by the fact that the firm of Krupps had been effectively developing the idea of garden towns and suburbs round Essen, and it is most gratifying that the special investigators, who visited the place in 1924, reported that, 'for all the immense industrial development of the district and its dense population, the landscape still preserves, to a surprising extent, its rural character.' Thus it may fairly be claimed that regional co-ordination has passed the stage of theory and initial experiment, and that its possibilities have now been demonstrated. In India, however, zoning and regional planning are practically unknown; and town-planning itself is rare.

Higher Ideals of Town-planning.—Let it not, however, be understood from what has been said so far that town-planning and regional planning are merely a question of architecture and engineering. In the words of Gibbon, 'Town-planning is an endeavour to secure the most advantageous external conditions of life.'²

² J. G. Gibbon, 'Town-planning and Regional Development,' *Garden Cities and Town-planning*, December, 1924.

For this the town-planner has to enter the lives of the citizens more deeply. The well-planned city accordingly not only provides easier and more rapid communications, more light, purer air, more healthful and less expensive houses and increased opportunities for physical development, but better environment for the social and moral life of the inhabitants; while the superior external appearance, beauty and harmony in the city promote art and æsthetic sense among the citizens. Here is the highest function of the town-planner. In his creation of the 'city beautiful' he satisfies the human craving for beauty while providing for the everyday material needs; so that his art is an ever-present influence in the lives of multitudes of men.¹

Indian Ideas of Town-planning.—Every nation or people has left the marks of its civilisation and culture in its towns, public buildings or works of art. Not only do the wonderful remnants of Greek, Egyptian and Roman cities strengthen this view, but in India itself the glories of the ancient civilisations, embodied in the beautiful temple cities of the south, proclaim the same. That town-planning as an art was highly developed in India several centuries before the advent of the Europeans is clear from the principles of town development and growth enunciated in the *Shilpa-Shastras*, and enlarged upon and detailed in Tamil literature. The application of those laws to the laying out of towns is also manifest after a study of the lay-out of the numerous temple cities of south India. The palace or the temple has always been the starting-point from which streets run in all directions, while the residential areas, public places, and gardens are carefully arranged in proper relation thereto. The natural features and the contour of the land are utilised to the fullest advantage, and the tanks and streams carefully maintained. All this has been done with due regard to the existing conditions and arrangements, and not piecemeal. The religious turn which ancient writers have invariably given to every social or economic activity, has also found favour with them in arousing the public conscience to create an interest in tanks, parks, gardens, avenues, etc. Rightly has Havell pointed out that, 'The most advanced science of Europe has not yet improved upon the principles of the planning of the garden cities of

¹ Hughes and Lamborn, *Towns and Town-planning, Ancient and Modern*, p. 99.

India, based upon the Indian village plan as a unit.¹ The general planning of the larger villages, in the words of Havell, 'followed the cosmic cross and the so-called magic square, representing the four quarters of the universe.'² In not a few cases, however, towns in ancient times have been modelled in the shape of a lotus flower or as representing *Garuda*, with his out-stretched limbs, or personifying some other god or goddess. In the lotus plan, the city has four gates in four directions, and roads and parks in rows, like the petals of the sacred flower.³ The principal streets ran east and west or north and south, in order to allow the free entry of the sun from morning till evening and to ensure a perfect circulation of air. The diagonal plan of the streets was definitely prohibited, as not only inauspicious but unsuitable to Indian conditions; because in that case the streets run in the wrong direction for the sun, and because it tends to the congestion of traffic and admits of an uncomfortable plan of house and garden. At the intersection of the principal streets, in a central place and on a mound, was generally planted a *banyan* or a *pipal* tree, where the meetings of the villagers were held.

Town-planning in Mediæval India.—In mediæval India, the Mogul emperors and the other Muslim monarchs displayed great artistic skill in the building of capital and other chief cities, at Delhi, Agra, Fatehpur-Sikri, Dacca and Lucknow. Cities like Agra or Bijapur, Fatehpur-Sikri or Lucknow were some of the most beautiful and splendid cities of the world. The builder of the Taj and the architect of Sikandra or Sikri are some of the world's greatest builders. Imperial palaces were built the magnificence of whose rich wall decorations, marble pavements, and spacious halls of a thousand doors have hardly been excelled up to the present time. The grandees and nobles of the emperors also vied with one another to construct splendid residences for themselves; while mosques, madrasas, etc., were also built by the command of the emperors or the magnificence of merchant-princes and nobles. Public markets and public baths were also provided for, and the grounds in the city environs were beautifully laid out with fine gardens, canals and aqueducts. Some of the Muhammadan kings were, indeed, great builders and gardeners, and

¹ E. B. Havell, *Ancient and Mediæval Architecture of India*, pp. 7-8.

² Ibid.

³ Radha Kamal Mukerjee, *Civics*, p. 188.

travellers from the remotest parts of Asia used to come to the capital cities and admire the splendour of the palaces, the beauty of the gardens, and the magnificent lay-out of the roads and tanks; while renowned mediæval poets also derived their inspiration from the beauties of nature, which were conserved and heightened in the city environment. Ample open spaces were retained at suitable places throughout the city; while tanks, wells and canals were invariably provided for the convenience of the general populace. It is unfortunate, however, that the Muslim emperors did not always realise the importance of wide roads for the convenience of traffic, and accordingly the market streets in the mediæval towns were generally narrow. This may be attributed to the oriental love of concentration and an innate disliking of dispersion.

European Town-planning.—In modern times, the Germans, the French, the Americans and the English have each embodied their highest conceptions of order, beauty, grandeur, convenience, etc., in the planning of their cities, regardless of the question of expense; so much so that the enormous expenditure involved in the decoration of some of the English and Continental towns has called forth the indignant protest of one of the most well known authorities on town-planning.¹ In many cases town-planning experts have been given an absolutely free hand for developing plans to remodel cities, or to found new ones on absolutely unencumbered sites.

Aims of Town-planning.—The principles of town-planning may, however, be applied in three distinct directions. Firstly, for the purpose of drawing up a scheme for the lay-out of a new town, making out an adequate and suitably articulated road system, allotting areas for residence, commerce and industry, deciding the density, heights and depths of houses, building lines and street widths, and marking out places for parks, pleasure resorts and public buildings. Secondly, town-planning may be applied to the outskirts of existing towns, in order to prevent the mistakes of commission and omission in portions still to be built. Thirdly, and

¹ 'It is the case, and indeed it is the mark of an advancing civilisation, that, as any nation becomes firmly rooted in even modest prosperity, there is a growing tendency to pay more and more attention to the decorative element in life, just as, for a woman of even but moderate means, lace and frills and the æsthetic flutter of dress may become of far more importance than mere covering.'—Gibbon, *Garden Cities and Town-planning*, December, 1924.

lastly, town-planning may be applied to areas that have already been built up, and where the lay-out is haphazard, wasteful and insanitary. Here it does not necessarily follow that re-planning involves a wholesale demolition of all existing property. Very effective improvements can often be made by comparatively slight alterations of the ground-plan at a few key points. Moreover, all rebuilding and new construction will be compelled to follow the lines laid down therein. Thus, in course of time the whole city may undergo a thorough reorientation.

Length of vision, broad-mindedness, and boldness of execution are some of the basic principles of a good town-plan, which must alike take account of the historical traditions, geographical conditions, present aspirations and future possibilities of the city. For this purpose an extensive survey of the city is necessary, and should be carried out by an expert in civics with some knowledge of engineering. The plan evolved from such a survey must take special care of the location of industries, present as well as future; the housing of different classes of people; the economical and rapid means of transporting raw materials, manufactured articles and other heavy goods; the disposal of waste and sewage, and the provision of facilities for education, marketing, recreation, etc. The plan must not be piecemeal but a harmonious and complete unit, drawn up with an intelligent foresight to meet all future developments.

Foresight of German Local Authorities.—In this connection we cannot but admire the boldness and foresight with which the German local authorities provide for an ever-enlarging future. It is not uncommon to find, with such local authorities, ready-made plans for the expansion of their cities for centuries in the future, setting out the future quarters and the main arteries of circulation in vivid detail. They realise that civic efficiency and well-being are of first rate importance and that group survival determines that of the individual, and accordingly devote careful attention to the growth of civic life and organisation on the most efficient and carefully determined lines. This is aided by the fact that most German cities own considerable areas, both within and without their boundaries. Another interesting and important regulation in German town-planning is that of zones, whereby a town is divided into belts or areas, in each of which both the type and arrangement of the buildings vary in such a way as to ensure the free circulation of air from the open country throughout the city. The effective placing of

public buildings in relation to their surroundings is also given careful thought. In short, the German method is characterised by the attempt to meet, no longer piecemeal and from day to day, but with intelligent foresight, the complex needs of a great town of progressing affairs and of growing population; and of supplying the demands of modern industry without forgetting those of modern populations. Place, work and folk—environment, function and organisation—are thus no longer viewed apart, but as the elements of a single process, that of healthy life for the community and the individual.¹

Town-planning in England.—In England, the Housing and Town-planning Act of 1909, as amended subsequently, definitely requires all municipalities with over 20,000 inhabitants to submit plans for the future improvement and expansion of their respective cities before January, 1926, according to which all future development is to take place.

Municipal Planning in France.—In France also the City Planning Law, passed in March, 1919, requires all communes of more than 5,000 inhabitants to formulate plans concerning: (1) the direction, width and location of highways, extent and plan of squares, public spaces, reserve lands, building sites, etc., (2) a programme for the hygienic, archæological and æsthetic servitudes, the height of buildings, provision of drinking water, sewers, waste, etc. Any settlement destroyed by a catastrophe, such as fire, earthquake or war, may not be restored or reconstructed until the plans are approved by the Departmental Planning Commission, which is composed of the local bodies and four Mayors appointed by the state. There is also a superior Planning Commission, created by the Ministry of the Interior, which lays down general planning rules, offers advice on schemes submitted to it, and is the final authority on all matters connected with town-planning.² But France's main contribution to the art of town-planning has been the lesson of spaciousness and dignity in the laying out of streets. In fact, French kings have taken particular delight and pride in laying out broad and magnificent thoroughfares.

In Sweden.—In Sweden a far-reaching building law was passed

¹ Patrick Geddes, *Cities in Evolution*, p. 198.

² Williams, 'France's First City Planning Law,' *National Municipal Review*, October, 1919.

as early as 1874. It provides that, 'For every town there shall be prepared a plan for the regulation of its general arrangements and of the buildings within it. The plan shall regulate not only the buildings, but also the streets, the markets and other public places. No building must take place which contravenes the arrangements of the prepared plan, nor shall a town be extended into an area for which no building plan has been prepared.'¹

In the U.S.A.—In the United States town-planning legislation is largely local; the municipal authorities not only prepare and modify their own schemes, but have power to raise the necessary money and to expend it according to their own plans. American town-planning, as everything else, is characterised by bigness and thoroughness, while her chief contribution may be said to be the conception of a fine architectural backbone to her city plans in the form of definite 'civic centres,' laid out on noble lines. The successful realisation of these ideals at Washington, Chicago, Cleveland, Pittsburg, Philadelphia, etc., have also been helped by the co-operation of the citizens through non-official civic associations, which exist in almost every important city.

The Planning of Canberra.—But the largest town-planning scheme of modern times is that of the new Australian Commonwealth capital, Yass Canberra, unique in being the example of the first large city to be planned *de novo* on virgin soil. Here a city is being created with a proper grouping of its various parts, with a government centre, manufacturing centre and a residential area, each finely designed, and yet providing for future expansion, with its fine street and park system, planned as one complete unit and taking full advantage of the configuration of a very fine site.²

The Need of Town-planning in India.—Thus in Europe, as well as in the United States of America and in Australia, considerable activity is manifest in the proper laying out of the cities, so that the possibilities of future unhygienic growth are more or less eliminated, while not infrequently expensive surveys have been undertaken and towns remodelled for sanitary and healthy living, according to the recommendations of thoroughly-qualified and well-known civic engineers. India badly needs that her industrial towns, like Ahmedabad, Cawnpore, Nagpur, Howrah,

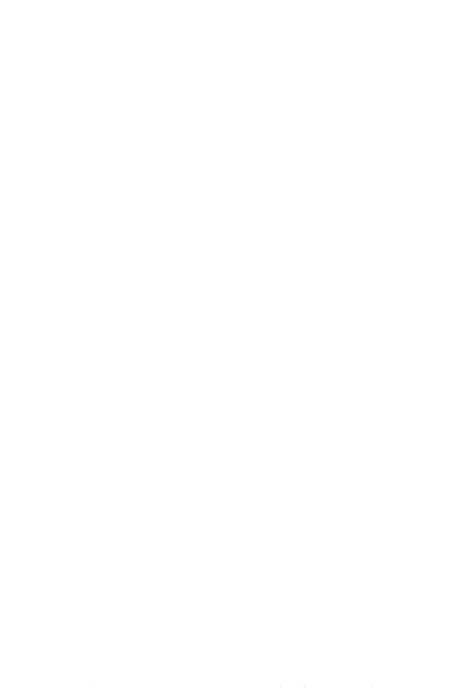
¹ Hughes and Lamborn, *Towns and Town-planning, Ancient and Modern*, p. 99.

² *Ibid.*, p. 121.

Karachi, etc., as also Madras, Calcutta, Bombay and Rangoon, should receive similar attention, so that these may set an example of order, beauty, cleanliness and comfort, rather than of confusion, ugliness and disease, which they present to-day. Town-planning, however, does not consist of some general principles which may be learnt in one place and imitated in another. It is, as Professor Geddes very aptly puts it, 'The development of a local life, a regional character, a civic spirit, a unique individuality, capable, of course, of growth and expansion, of improvement and development in many ways, of profiting too by the example and criticism of others, yet always in its own way and upon its own foundations. Thus the renewed art of town-planning has to develop into an art, yet higher, that of city design—a veritable orchestration of all the arts, and correspondingly needing, even for its preliminary surveys, all the social sciences.'¹

Regional Basis.—Professor Geddes' remarks contain a significant lesson and a serious warning to us in India, where those concerned with these problems have a clear bias in favour of Western institutions and designs and are apt to under-rate or under-estimate the value of indigenous methods and plans; although their endeavour, according to the highest principles of town-planning, should be to maintain, enrich and revivify the highest and noblest achievements of our ancient civilisation and culture. A historical, regional and anthropological background is absolutely necessary to impart that individuality and national character to our cities, which is the recognised foundation and the most characteristic feature of good town-planning. This, however, should not prevent us from improving and embellishing our traditional art and design by such adaptation of the architecture and art of other countries as may appear to be inspiring and attractive to our imagination. Such adaptation should, however, on no account be allowed to dominate the regional and the national character of the place. A rational and discriminative application of the best in foreign art and design to national architecture may serve to intensify and enhance the beauty of indigenous institutions, but a wholesale or indiscriminate application of foreign art and culture to local conditions may look ugly and altogether inartistic. The true town-plan, in short, is the outcome and flower of the whole civilisation and culture of a community.

¹ Patrick Geddes, *Cities in Evolution*, p. 205.



APPENDICES

APPENDIX I

TENEMENT CENSUS OF CITIES

Percentage of population living in each class of tenements to total population in the principal industrial cities of India by wards :

CITIES AND WARDS	PERCENTAGE OF TOTAL POPULATION LIVING IN TENEMENTS WITH NUMBER OF ROOMS					
	1	2	3	4	5	6 and over
BOMBAY CITY ..	66	14	8	5	4	3
Fort, South ..	78	9	4	4	2	3
Mandvi ..	75	12	5	3	2	3
Dongri ..	91	5	2	1	1	..
Market ..	87	2	3	3	2	3
Bhuleswar ..	73	12	5	4	1	5
Second Nagpada ..	82	9	3	3	1	2
Byculla ..	51	21	19	7	1	1
Sewri ..	96	3	1	..	..	..
Mahim ..	80	10	5	3	1	1
Worli ..	88	9	2	1	..	..
Parel ..	32	15	13	15	11	14
AHMEDABAD ..	52	21	9	8	3	7
Kalupur. 3† ..	56	19	7	7	3	8
Shahpur. 2 ..	57	20	7	6	3	7
Raikhanda ..	57	20	10	8	3	3
Jamalpur. 2 ..	23	31	14	18	5	9
Khodla. 3 ..	8	27	19	16	8	22
Puras ..	84	9	3	2	1	1
Daryapur Kazipur ..	92	5	1	1	1	..
Shahibag ..	92	4	..	1	..	3
Asarva ..	76	17	4	1	1	1
Railwaypura ..	88	5	3	2	..	2
Shaherkotda ..	97	2	..	1	..	..
Gomtipur ..	85	13	..	2	..	..
Rajpur Hirpur ..	94	4	1	..	..	1
Beherampur ..	90	2	4	1	..	3
CAWNPORE CITY ..	64	21	7	4	4*	..
Civil Lines ..	66.5	15	9	3.5	6*	..
Patkapore ..	81	12.5	3.5	2	1*	..

* Indicates the percentage of population living in five rooms and over.

† Figures in column 1 indicate the number of *chaks*.

APPENDIX I (Continued)

CITIES AND WARDS	PERCENTAGE OF TOTAL POPULATION LIVING IN TENEMENTS WITH NUMBER OF ROOMS					
	1	2	3	4	5	6 and over
CAWNPORE (contd.)						
Moolganj ..	50.5	28.5	10.5	5	5.5*	..
Hayatganj ..	49	26	10.5	6.5	8*	..
Sadar Bazar ..	79	16	4	1	..	..
Collectorganj ..	55	29	8.5	4.5	3*	..
Anwarganj ..	66	21.5	6.5	2.5	3.5*	..
Gwaltoli. 7† ..	72.5	17	5	2	3.5*	..
Allenganj. 8 ..	96	2	1	..	1*	..
McRobertganj. 9..	69	22	6	2	1*	..
Do 10..	93.5	3.5	1	..	2	..
Etawah Bazar. 21..	100	..	..	..	..	..
Filkhana. 22 ..	100	..	..	..	..	..
Maheshari Mahal. 30	100	..	..	..	..	..
Juhi Khurd. 83 ..	78.5	17	2.5	2	..	..
Luchmi Purva. 85 ..	60	27	6.5	3.5	3	..
Anwarganj. 90 ..	99	1	..	..	..	..
Sisaman. 105 ..	100	..	..	..	..	..
KARACHI CITY ..	58	23	7	4	2	6
Queen Road, W. ..	77	13	3	2	1	4
Runchore ..	71	11	1	2	1	14
Begari Khata ..	81	15	3	1	..	..
Queen Road, E. ..	92	2	2	2	..	2
Frere Town ..	81	5	3	5	2	4
Lyari ..	90	8	1	1	..	..
Scattered hamlets ..	89	..	10	1	..	..
Old Town ..	17	26	15	15	8	19
Napier ..	36	26	9	9	4	16
Keamari ..	23	72	3	1	..	1
LUCKNOW CITY ..	34	27	17	11	11	..

* Indicates the percentage of population living in five rooms and over.

† Figures in column 1 indicate the number of *chaks*.

APPENDIX II

OVERCROWDING IN TENEMENTS

Percentage of each class of tenements to total, and the average number of persons living per room in each class of tenements in some Indian cities by wards:

CITIES AND WARDS	PERCENTAGE OF EACH CLASS OF TENEMENTS TO TOTAL					AVERAGE NUMBER OF OCCUPANTS PER ROOM				
	1	2	3	4	5 and over	1	2	3	4	5 and over
BOMBAY CITY ..	70	14	7	4	5	4.03	2.11	1.60	1.30	1.06
Lower Colaba ..	81	3	3	4	9	4.35	2.97	1.91	2.08	2.13
Fort, South ..	76	13	5	3	3	7.38	2.58	1.91	1.85	1.45
Esplanade ..	51	13	9	9	18	6.34	6.44	3.37	3.29	1.70
Mandvi ..	79	12	4	2	3	5.05	2.51	2.12	1.74	1.83
Umarchadi ..	85	6	4	2	3	4.80	3.39	2.64	1.65	1.13
Market ..	90	2	5	1	2	4.82	2.36	1.96	3.42	1.76
Kumbharwada ..	94	4	1	1	..	4.61	3.23	3.29	1.95	3.00
Tardeo ..	60	23	7	6	4	5.52	1.81	2.03	1.81	1.46
2nd. Nagpada ..	89	8	1	1	1	3.54	2.12	2.97	2.64	3.06
Byculla ..	57	22	16	5	..	44.10	2.34	1.88	1.97	3.34
Scwri ..	96	3	1	..	..	5.09	2.12	1.74	1.26	1.70
Mahim ..	82	9	4	3	2	4.58	2.52	1.88	1.30	1.31
Worli ..	90	9	1	..	..	4.73	2.51	2.95	2.63	2.80
ARMEDABAD ..	55	22	9	7	7	3.39	1.74	1.31	1.07	.92
Khadia (3) ..	13	33	19	14	21	2.52	1.52	1.26	1.08	.96
Kalupur (3) ..	61	20	7	5	7	3.68	1.95	1.51	1.22	.95
Shahpur (2) ..	60	19	8	5	8	3.65	1.99	1.26	1.02	.86
Jamalpur (1) ..	56	29	6	7	2	3.56	1.89	1.44	1.05	1.00
Raikhad ..	63	19	8	6	4	3.24	1.88	1.48	1.15	.95
Puras ..	86	9	2	1	2	3.51	1.85	1.43	1.16	.94
Daryapur Kazipur ..	93	5	1	1	..	3.76	2.07	1.68	1.32	1.37
Shaher Kotda ..	98	1	..	1	..	3.58	2.08	1.26	1.20	.58
Rajpur Hirpur ..	96	3	1	..	..	3.66	2.56	2.83	.88	..
Beherampur ..	95	3	1	1	..	3.18	2.50	2.83	1.75	.80
KARACHI CITY ..	69	22	4	2	3	3.46	2.20	2.24	1.75	1.81
Napier ..	52	27	8	7	6	4.50	3.13	2.37	2.16	2.39
Machi Meani ..	60	32	4	2	2	4.04	2.42	2.39	1.88	9.83
Queen Road, W. ..	68	26	2	1	3	5.14	1.13	2.29	2.44	1.70
Serai ..	44	41	8	3	4	5.48	3.20	1.83	1.82	1.43
Runchore ..	84	12	1	1	2	3.93	2.16	1.83	1.81	2.64
Lyari ..	92	7	1	..	..	3.83	2.03	2.78	2.14	2.20
Scattered hamlets ..	99	..	1	..	..	4.97	..	2.06	4.17	..

APPENDIX III

INFANT MORTALITY

Infant mortality rates per 1,000 births in some important industrial cities and selected wards :

CITIES AND WARDS				1923	1926	1927	1928
CALCUTTA CITY				294	347	324	..
Jorabagan ..	..	..	..	459	501	479	..
Jorasanko ..	..	..	..	319	379	410	..
Burra Bazar ..	..	..	..	334	676	398	..
Colootollah ..	..	..	..	423	466	467	..
Muchipara ..	..	..	..	355	410	396	..
Waterloo Street ..	..	..	..	875	500	444	..
Fenwick Bazar ..	..	..	..	420	576	557	..
Collingah ..	..	..	..	435	426	619	..
Entally ..	..	..	..	339	437	452	..
Beniapooker ..	..	..	..	297	560	480	..
Ballygunge ..	..	..	..	373	478	687	..
Kidderpur ..	..	..	..	377	401	372	..
BOMBAY CITY				411	389	316	..
Mandvi ..	..	..	..	521	425	514	..
Dongri ..	..	..	..	410	423	284	..
Market ..	..	..	..	419	403	320	..
Bhuleswar ..	..	..	..	429	416	396	..
Kumbharwada ..	..	..	..	504	409	321	..
Girgaum ..	..	..	..	429	334	300	..
Mazagon ..	..	..	..	397	407	345	..
2nd. Nagpada ..	..	..	..	521	489	382	..
Kamathipura ..	..	..	..	406	482	351	..
Byculla ..	..	..	..	548	518	484	..
Parel ..	..	..	..	414	379	320	..
Sewri ..	..	..	..	462	514	393	..
Sion ..	..	..	..	534	431	315	..
Mahim ..	..	..	..	355	354	291	..
Worli ..	..	..	..	435	399	323	..
NAGPUR CITY				256	311	262	..
Ganeshpeth ..	..	..	..	282	369	338	..
Killa and Old Shukrawari ..	..	..	..	208	384	271	..
Mohite's Mohalla ..	..	..	..	273	364	301	..

CITIES AND WARDS	1923	1926	1927	1928
NAGPUR CITY (contd.)				
Fadnavispura	271	446	360	..
Ayachitwahi	308	305	284	..
Ganga Jamna	263	307	343	..
Reshim Bazar	264	336	215	..
Sawatkhani's Gote	294	432	279	..
Rui Ganj	298	284	220	..
AMRAOTI (C.P.)	225	319	230	..
Chattarpur	281	344	431	..
Hamalpur	290	290	236	..
Bhusara	170	449	348	..
Bajaja	400	406	348	..
Ratanganj Masanganj	294	427	239	..
Khadkalipura	211	304	298	..
CAWNPORE CITY	495	484	322	384
Khallasi Lines	436	441	341	412
Colonelganj	362	459	229	321
Gwal Toli	550	447	331	364
Luchmi Purva	389	364	478	328
Rai Purva	535	561	417	626
LUCKNOW CITY	285	292	260	308
Chowk	290	281	235	299
Yahiaganj	309	303	283	332
Saadatganj	283	318	290	299
Daulatganj	269	316	296	340
Hasanganj	239	299	268	371
Gancshaganj	268	273	222	252
Hazratganj	286	257	236	295
Wazirganj	304	296	259	307
AHMEDABAD CITY	300	438	287	331
Khadia	314	487	292	367
Kalapur	317	442	307	350
Darapur	305	482	346	350
Shahpur	295	413	257	317
Jamalpur	300	439	296	302
Raikhad	317	432	258	338
Saraspur .. .. .	..	493	350	387
Puras	231	409	267	312
MADRAS CITY	254	..	238	..
Rayapuram	350	..	254	..
Washermenpet	273	..	253	..

APPENDIX III (Continued)

CITIES AND WARDS				1923	1926	1927	1928
MADRAS CITY (contd.)							
Harbour .. .. .	..	..	..	405	..	332	..
Kachaleshwaranpet .. .. .	..	..	..	305	..	239	..
Kothawal Bazar .. .. .	..	..	..	370	..	290	..
Ammen Kovil .. .. .	..	..	..	290	..	266	..
Seven Wells .. .. .	..	..	..	271	..	290	..
Sowcarpet .. .. .	..	..	..	330	..	369	..
Peddunickenpet .. .. .	..	..	..	326	..	256	..
Trevelyan Basin .. .. .	..	..	..	295	..	309	..
Esplanade .. .. .	..	..	..	296	..	320	..
Park Town .. .. .	..	..	..	309	..	256	..
Chulai .. .. .	..	..	..	241	..	279	..
KARACHI CITY				227	..	207	..
Lyari .. .. .	..	..	..	238	..	244	..
Gizri .. .. .	..	..	..	289	..	219	..
Keamari .. .. .	..	..	..	156	..	207	..
Soldier Bazar .. .. .	..	..	..	251	..	216	..
Ramswami .. .. .	..	..	..	252	..	309	..
Runchore .. .. .	..	..	..			245	..
RANGOON CITY				..	..	294	..
Lanmadaw .. .. .	..	..	..	..	..	305	..
Botataung .. .. .	..	..	..	..	..	265	..
Cantonment .. .. .	..	..	..	..	..	485	..
N. Kemmendine .. .. .	..	..	..	..	..	308	..
Tarokton .. .. .	..	..	..	..	..	234	..
Yegyan .. .. .	..	..	..	..	..	234	..
Theinbyu .. .. .	..	..	..	..	..	421	..
DELHI CITY ..				..	..	205	..
Maliwara .. .. .	..	..	..	..	..	278	..
Charkbewala .. .. .	..	..	..	..	..	219	..
Sitaran Bazar .. .. .	..	..	..	..	..	219	..
Dariba .. .. .	..	..	..	..	..	212	..
Suri Walan .. .. .	..	..	..	..	..	207	..
Farrash Khana .. .. .	..	..	..	..	..	203	..
Faiz Bazar .. .. .	..	..	..	..	..	193	..

APPENDIX IV

MORTALITY FROM SOME DISEASES

Death-rates from some diseases in important industrial cities and selected wards in 1927 :

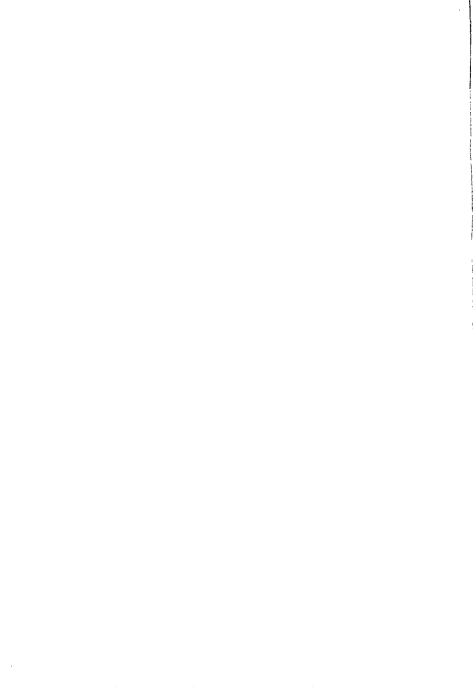
CITIES AND WARDS	DEATH RATES PER 1,000 OF POPULATION		
	Dysentery and Diarrhoea	Tuberculosis or Pthisis	Respiratory diseases
BOMBAY CITY	1.1	1.3	7.6
Upper Colaba	1.3	2.7	7.3
Esplanade	1.9	2.3	10.0
Umarchadi .. .. .	.7	1.6	11.2
Bhuleshwar .. .. .	.7	2.5	10.1
Girgaum .. .. .	.9	1.1	5.8
Mazagaum	1.0	1.7	9.3
2nd, Nagpada	1.4	1.5	9.3
Kamathipura	1.2	2.4	8.3
Tardeo .. .. .	.8	.9	11.6
Byculla	1.1	1.5	9.8
Parel	1.3	.7	7.5
Sewri	1.6	.2	9.2
Sion	2.8	.8	6.5
Mahim	1.4	.8	7.7
Worli	1.2	.5	8.9
CALCUTTA CITY	3.4	2.8	6.5
Sukea Street	2.4	2.6	4.7
Jorabagan	2.8	2.8	5.9
Jorasanko	3.2	3.3	4.8
Colootollah	1.8	3.1	6.9
Muchipara	2.6	2.5	5.9
Waterloo Street .. .. .	.5	1.1	3.7
Bow Bazar	1.6	1.5	3.4
Collingah	2.1	2.7	7.1
Entally	5.8	4.1	18.1
Beniapooker	4.0	2.6	15.4
Ballygunge	3.7	2.1	8.8
Bhowanipur	3.9	2.8	5.2
Kidderpur	4.4	4.2	14.6
Hastings and Watgunge.. .. .	2.1	2.0	6.9

APPENDIX IV (Continued)

CITIES AND WARDS	DEATH RATES PER 1,000 OF POPULATION		
	Dysentery and Diarrhoea	Tuberculosis or Pthisis	Respiratory diseases
RANGOON CITY	3.0	2.6	7.2
Lanmadaw	3.4	4.1	9.5
Botataung	3.3	2.8	6.2
Cantonment	1.1	2.5	4.3
North Kemmendine	2.6	2.0	7.9
South Kemmendine	1.8	1.7	4.1
Taroktan	3.5	1.6	7.8
Yegyaw	2.2	1.8	7.4
Theinbyu	3.5	1.6	8.3
MADRAS CITY	6.2	3.3	9.5
Tondiarpet	13.0	3.2	11.0
Korukupet	5.9	4.0	15.4
Harbour	4.8	4.0	10.4
Ammen Kovil	5.2	4.7	8.3
Seven Wells	6.9	5.4	9.5
Peddunaickanpet	4.3	4.1	10.1
Esplanade	10.5	23.6	23.3
Perambur	8.0	2.9	15.7
Chulai	9.9	4.2	11.7
Vepery	5.1	3.8	11.2
Thiruvateeswarapur	8.6	4.1	60.9
Amir Mahal	7.1	3.5	10.6
DELHI CITY	1.3	1.9	10.0
Dariba	4.0	3.8	19.8
Maliwara	1.2	2.6	10.4
Charkhewala	1.0	2.5	11.4
Farashkhana	1.6	2.4	10.4
Sitaram Bazar .. ..	.9	3.0	12.6
Suriwalan	1.1	1.8	14.1
Faiz Bazar	1.5	2.6	15.9
AHMEDABAD CITY	1.5	3.8	9.9
Khadia	1.7	2.9	11.6
Kalupur	1.4	3.2	8.9
Dariapur	1.5	4.0	10.4
Shahpur	1.5	6.8	10.1
Jamalpur	1.6	3.3	8.8
Raikhad .. ..	.6	3.6	11.3
Saraspur .. ..	.5	2.4	8.7
Puras	1.8	3.5	9.7

APPENDIX IV (Continued)

CITIES AND WARDS	DEATH RATES PER 1,000 OF POPULATION		
	Dysentery and Diarrhoea	Tuberculosis or Pthisis	Respiratory diseases
NAGPUR CITY	2.2	Not available	9.3
Ganeshpeth	3.5		11.9
Bhutia Darwaza	3.9		9.7
Killa and Old Shukrawari	3.4		10.1
Padnavispura	2.4		10.9
Nimak Ganj Taka	2.0		13.6
Ganra Jamna	4.4		8.9
Masan Ganj	2.0		11.5
Boriapura	2.5		12.4
Sawalkhan's Gote	1.5		10.1
Sitabuldi and Dhantoli	1.1		8.2
CAWNPORE CITY			
Allengunj	Not available	3.7	15.7
McRobertganj		2.1	7.4
Gwal Toli		6.9	16.7
Filkhana		5.1	6.3
Nachghar		6.5	10.1
Patkapur		4.9	8.5
Misri Bazar		10.2	11.4
Collectorganj		4.6	16.7
Coolie Bazar		9.1	13.1
Butcherkhana Kalan		9.9	15.3
Purva Hiranman		11.4	16.9
Anwarganj		5.9	11.9
Colonelganj		4.1	9.7
Luchmi Purva		1.6	8.4



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